VOL. XVI, No. 13 CHICAGO, SEPTEMBER 23, 1909 $3.00 PER YEAR

MOTOR AGE

MUNSEY RUN TOURISTS WELL ON THEIR WAY

IN WASHINGTON—CARS LINED UP FOR START OF THE MUNSEY RELIABILITY RUN TO BOSTON AND RETURN

PHILADELPHIA, Pa., Sept. 21—Special telegram—But twenty-five of the thirty-seven cars originally entered in the Munsey run from Washington to Boston started from the capital this morning. All of them arrived here on time. Indeed there was but one time penalty inflicted during the day, and that was due to a balky motor, which delayed the Winton six, driven by B. B. Tatham, at the start. The roads, barring the section adjacent to Baltimore, were excellent and even the smaller cars, which ran on 16 and 18-mile schedules, as against the big fellows' 20 miles, experienced no difficulty in negotiating every control well within the limit.

An accident to the elevator at the official garage in Washington delayed the start 30 minutes. Matheson No. 27, driven by W. B. McBurney, was on the lift at the time, and when it dropped the fuel tank was torn loose from the car. Referee Trego made a ruling allowing the car to start as soon as a new tank had been fitted. It got away at 9:33, 2 hours late, and reported on time. When the elevator collapsed five of the contesting cars still remained on the second floor. Technical Committeeman Overpeck made a first-aid repair and had the lift working again in 30 minutes, allowing the marooned cars to reach the starting point in front of the Munsey building on time.

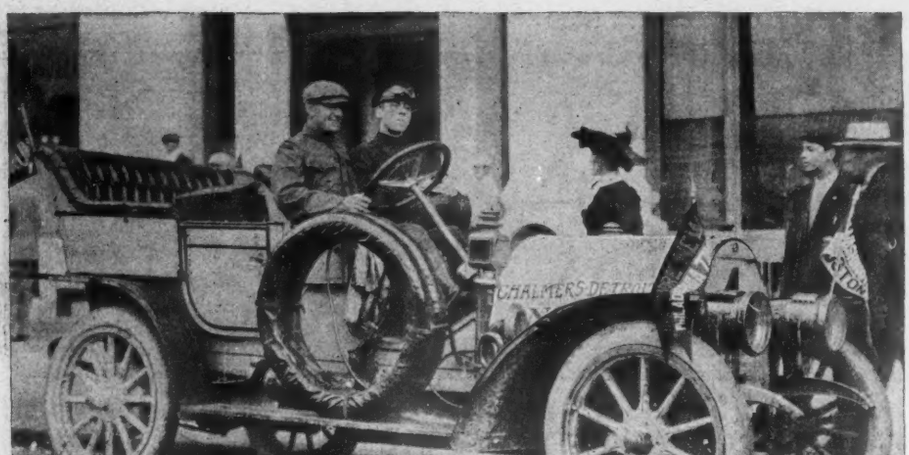
Not a single accident marred the day, which was a delightful one in all respects. The roads through the tobacco country of Pennsylvania were all that could be desired and long waits at the intermediate centrals at Biltmore, York and Downingtown were the rule.

The first day's route lay through a region in which the toll gate flourished in all its violence. Not fewer than twenty-two of these were noted on the official book, at which the tariff ranged from 6 to 45 cents, not counting the toll over the long Susquehanna river bridge, between Wrightsville and Columbia, where the assessments ranged from 40 cents to $1, according to the seating capacity of the car. At each of these gates it was necessary for someone in each car to dig into his jeans for the change, and loud were the complaints that arose in consequence. The neglect of the run committee to attend to this important detail was not satisfactorily explained. The kickers usually based their objections on the time lost at the numerous gates, but the fact that the total paid out averaged about $2.40 per car hurt the pocket nerve a little. In every other respect the management of the run is all that could be desired. The fact that the run is promoted by a rival news association makes the other papers a trifle tight in handling the affair from any but a strictly

ITINERARY OF MUNSEY TOUR

	Miles
September 21—Washington, D. C., to Baltimore, to Philadelphia, Pa.	195.3
September 22—Philadelphia, Pa., to Milford, Pa.	132.6
September 23—Milford, Pa., to Albany, N. Y.	158.5
September 24—Albany, N. Y., to Boston, Mass.	194.2
September 25—In Boston	
September 26—In Boston	
September 27—Boston, Mass., to New York City	239.4
September 28—New York City to Philadelphia, Pa.	198.3
September 29—Philadelphia, Pa., to Baltimore, to Washington, D. C.	163.9
Total mileage	1,282.2

Number of running days—7. Average per day—183.1 miles



KNIPPER IN THE CHALMERS-DETROIT, NO. 1 IN TOUR

news standpoint, but this is not felt much.

Tonight all the local clubs had some kind of entertainment going to keep the visitors employed. At the Walton, the Quaker City Motor Club put up a big smoker and vaudeville show. The Philadelphia and Century clubs held open house. Eleven of the twenty-five cars which started suffered penalties from work done.

Neither of the two cars in the first division escaped penalization today, the Ford getting 1.4 for carbureter adjustment and .3 for stalling the motor, while the Hupmobile's .2 was for adjusting an oiler rod. Both the Maxwell and the Reo, which constitute the second division, finished without observer's penalties. Of the even half dozen cars in the third division Washington No. 5 and Washington No. 31 were the only unfortunates, the former with .2 for fender repairs and the lattre with .1 for stalling the motor. The Pullman No. 12, Crawford No. 24, Washington No. 32 and Pullman No. 37 are still immaculate in their class.

The fourth division suffered most heavily of all, six of the eleven figuring in the demerit column. Chalmers-Detroit No. 1, driven by Billy Knipper, accumulated .7, .1 for stalling the motor and .6 for fastening the mudpan. Spoerer No. 14 was punished to the extent of .3 for oiling a clutch. Columbia No. 15 has .1 charged against it for brake adjustment. The .5 accumulated by Croxton-Keeton No. 16 was made up of .3 for work on motor and .2 for starting motor. In addition to its 3 demerits for as many minutes' delay in starting, due to a balky motor, Winton No. 20 gets 1.1 for adjusting the carbureter. Selden No. 34 lost its clean score through a loose belt, being punished .1 each for tightening same and for stalling the motor. Maryland No. 11, Pullman No. 13, Corbin No. 18, Marmon No. 30 and Elmore No. 36 are still clean.

The fifth division duo—Croxton-Keeton No. 17 and American Simplex No. 21, finished flawless, as did the Renault No. 28 in the sixth division, the only other entrant in the latter class, the Matheson No. 27 being given .4 for a tight hub cap, which had to be attended to.

Driver Behrens of Maryland No. 11 kept his score clean by a display of headwork. His motor began to slow down on a long upgrade owing to a scarcity of fuel. Quickly turning his car the other way, the scanty remnant of gasoline in his tank flowing by gravity, kept his motor going till a good samaritan among the contestants came along and sliped him an extra 5-gallon can he was carrying for emergency.

What the Tour Is

The tour which started from Washington this morning is one of the most pretentious of the year, having been organized by Frank A. Munsey, who explains his plan as follows:

"The Frank A. Munsey reliability touring contest of 1909 is the first motoring event of national size and significance which the Munsey newspapers—the Washington Times, the Boston Journal, the Baltimore News and the Philadelphia Evening Times—have promoted. Because it is the first it is especially noteworthy because the number of entries is the largest of any reliability event of the year, and that the number of makes represented is larger and the general character of the cars higher grade than in any other reliability event of the year.

"The division of cars into classes according solely to price and the awarding of trophies to the winners in each of these price divisions mark a new method of rating cars, one that seems the most equitable.

"In choosing the particular route fixed upon, the Munsey newspapers had in mind not only that the run would be through their home cities, and so be given special attention, but also that those points are four of the great cities of the east, having in their immediate neighborhood more than 5,000,000 people. When to that is added the population of the other im-

FIRST DAY'S PENALTIES

No.	Penalties Time	Work
FIRST DIVISION		
7—Ford	0	1.7
29—Hupmobile	0	.2
SECOND DIVISION		
9—Maxwell	0	0
26—Reo	0	0
THIRD DIVISION		
5—Washington	0	.2
12—Pullman	0	0
24—Crawford	0	0
31—Washington	0	.1
32—Washington	0	0
37—Pullman	0	0
FOURTH DIVISION		
1—Chalmers-Detroit	0	.2
11—Maryland	0	0
13—Pullman	0	0
14—Spoerer	0	.3
15—Columbia	0	.1
16—Croxton-Keeton	0	.5
18—Corbin	0	.0
20—Winton six	3	1.1
30—Marmon	0	0
34—Selden	0	.2
36—Elmore	0	0
FIFTH DIVISION		
17—Croxton-Keeton	0	0
21—American Simplex	0	0
SIXTH DIVISION		
27—Matheson	0	.4
28—Renault	0	0

REFEREE TREGO AND HIS OFFICIAL CAR, THE NATIONAL

portant places touched by this tour, the total figures run to more than 12,000,000.

"A reliability road contest was preferred by the Munsey newspapers because they believe this form of test of the motor car to be the fairest and most useful. In a run like this the cars meet road conditions that are similar to those met by the usual private owner, and the record of a car in such a contest carries with it information that has real value. The length of the run as a whole, with 1 or 2 days' especially strenuous driving and a sufficient proportion of rough going, insures a real test of the cars.

"The technical examinations before the start and after the finish and a comprehensive system of observers' reports assure an exacting check on the performance of each car. Defects that develop in the construction of the car or in its proper running or operation will be penalized, but it is not intended to inflict penalty for happenings that do not concern or impair the right operation of the car."

CARS PARKED IN FRONT OF WASHINGTON TIMES OFFICE, READY FOR START

Philadelphia to Milford

Milford, Pa., Sept. 22—Special telegram—Today saw two cars eliminated from the run, both fourth divisionites. Columbia No. 15, driven by O. G. Jacobi, came to grief in Allentown. An early morning rain had rendered the hilly streets of that town decidedly treacherous, and when Jacobi endeavored to negotiate a right-angled turn at the foot of a hill, his car skidded into the curb, dishing the right rear wheel. Mrs. Hall, wife of the owner of the car, was the only one hurt. Although not thrown out of the car, she was propelled with such force against Observer G. B. Emerson—who occupied a front seat and who saw the mixup coming and braced himself for it—that she fractured her collar bone. Emerson was picked up by Croxton-Keeton No. 16 and brought to this place. Tonight at dinner at the Crissman house, resolutions of regret were adopted and flowers sent the patient, who was taken to the Allentown hospital.

T. S. Patterson, who owns and drove Selden No. 34, withdrew from the run at Allentown, having received a telegram concerning a lawsuit which necessitated his immediate return to Philadelphia.

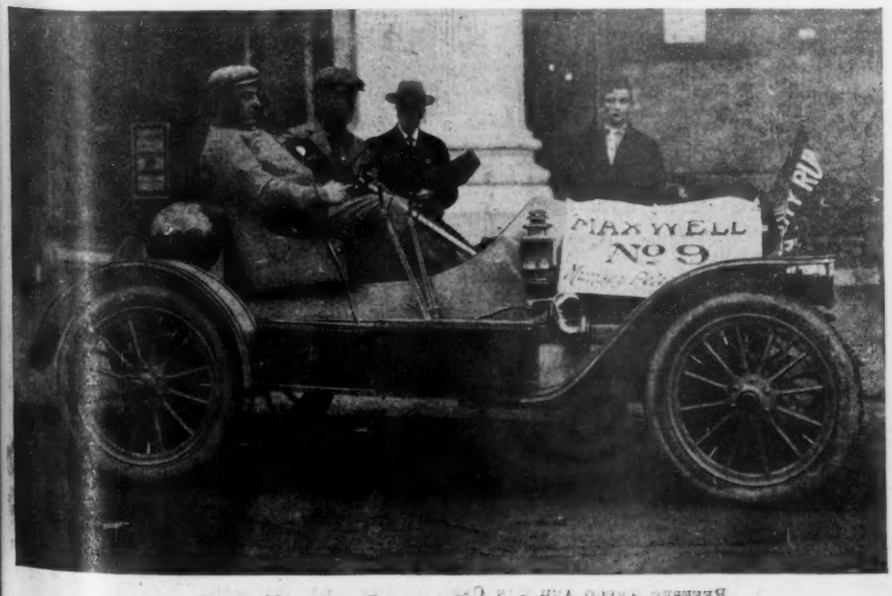
Corbin No. 18, driven by S. T. Goss, had trouble with its differential almost from the start today, and at Allentown was garaged pending the arrival of a new part from New York. The crew will work all night, if necessary, getting the car in shape, and have wired that they will report at Albany to morrow night.

The Studebaker-Garford press car is in trouble 25 miles back at Delaware Water Gap. Yerger has phoned that he will get going again some time tonight, and will be ready to start with the crowd tomorrow morning at 7 o'clock.

The Autocar truck reported before dark, carrying, besides its usual load of extra confetti and baggage, several of the pressmen from the stranded Studebaker, who had to file news for their papers. Nothing has been heard of the Detroit electric since midday yesterday. Nobody could be found who had seen it beyond the city of Baltimore.

For some unknown reason the officials today reduced the limit from 20 to 18 miles an hour. The roads were of the sandpaper variety for 90 per cent of the 1,326 miles and it required the exhibition of self-restraint on the part of Chairman Trego, who took a trick at the wheel of the National pacemaker, to hold the pace below 40 per. As it was, all but two or three of the cars finished away ahead of schedule.

At Rittersville, the Lehigh Valley Motor Club red-flagged the caravan and insisted on all hands partaking of a bountiful lunch, with liberal supplies of suds to wash the substantials down. Another lengthy stop not on the schedule was at the Kittatinny hotel, Delaware Water Gap, where the latter part of the Rittersville program was repeated. It is raining tonight and there is a fear on the part of the contestants that the committee, in the light of today's joy ride, may boost the running time to a 22-mile-an-hour basis.



NO. 9, MAXWELL, PERFECT FIRST 2 DAYS OF THE RUN

SECOND DAY'S PENALTIES

No.	Penalties Time	Work
FIRST DIVISION		
7—Ford	0	.3
29—Hupmobile	0	.0
SECOND DIVISION		
9—Maxwell	0	.0
26—Reo	0	.0
THIRD DIVISION		
5—Washington	0	.1
12—Pullman	0	.0
24—Crawford	0	.0
31—Washington	0	.1
32—Washington	0	.0
37—Pullman	0	3.6
FOURTH DIVISION		
1—Chalmers-Detroit	0	1.5
11—Maryland	0	.0
13—Pullman	0	.0
14—Spoerer	0	.0
15—Columbia	Unfinished	
16—Croxton-Keeton	0	4.3
18—Corbin	0	.0
20—Winton	0	6.0
30—Marmon	0	.0
34—Selden	Withdrawn	
36—Elmore	0	.0
FIFTH DIVISION		
17—Croxton-Keeton	0	.0
21—American Simplex	0	.1
SIXTH DIVISION		
27—Matheson	0	.0
28—Renault	0	.0

ANNUAL SESSION OF GOOD ROADS WORKERS

CLEVELAND, O., Sept. 21—The second national good roads convention opened here today with an atendance composed of members of the American Automobile Association and the National Grange. In addition to these, officially accredited delegates from forty-two states were present, and representatives of most of the larger motor clubs of the country. The federal government was represented by Louis W. Page, director of the United States public roads office. George C. Diehl, of Buffalo, was introduced as chairman of the convention by President Lewis R. Speare, of the American Automobile Association.

Both the morning and afternoon sessions were devoted to addresses on various phases of the good roads problem. The speakers of the day were James C. Wonders, state highway commissioner of Ohio; ex-Governor N. J. Bachelder, of New Hampshire, master of the National Grange; T. C. Laylin, master of the Ohio State Grange; F. N. Godfrey, master of the New York State Grange; J. H. McDonald, state highway commissioner of Connecticut, and George S. Ladd, special good roads lecturer of the National Grange.

Stress in all papers read was laid upon the necessity of interesting those states not now appropriating public funds to the construction and maintenance of the public highways under the system known as state aid and of bettering the highway laws of those states which already have adopted the state aid system.

"The delegates that are here present represent practically the entire organized sentiment of the good roads movement," said Chairman Diehl in the opening address. "Of the affiliated bodies there is the National Grange which has done the greatest good for the good roads movement. The grange represents over 1,000,000 farmers. There is the American Automobile Association with over 300 clubs and 30,000 members. There is the American Road Makers' Association. There also is the United States office of public roads. All these organizations are joined in this convention, as last year in Buffalo, to promote the national movement for good roads.

"The ideal to be sought is to have properly constructed and developed county and state systems of roads throughout this entire country. That can only be brought about by the enactment of comprehensive laws, the passing of liberal road appropriations and the economical expenditures of these moneys. To accomplish this purpose, we must arouse a public sentiment. This, it is hoped, will be done by the affiliated bodies, through their delegates and publications in various parts of the country."

Special interest attached to the address of Grange Lecturer Ladd. His subject was "The New England Plan for Connecting Lines of Trunk Highways." The speaker went further into the subject, however, discussing the good roads movement in all its phases, both with reference to the farmer and the motorist.

"The motor car has in recent years," said Mr. Ladd, "penetrated into every section of the country. The city man has learned the country and the farmer has gained glimpses of a new world. The result on both sides has been tremendously broadening. The motor car owner has felt the limitation of local roads and has longed for far-reaching boulevards; while the farmer has had a vision of the larger world, and has come to desire something more than merely good roads between his farm and his market. Moreover, the farmer has awakened to the possibilities of motor vehicles. The motor truck already is seen on the country roads laden with the farmer's produce.

"The situation may be thus summed up: On the one hand the farmer is seeking the cities for a market and on the other hand the manufacturer, the merchant is looking toward the hills and plains for pleasure, health and a place of summer residence. The motor car has proved a mighty factor in bringing these two extremes together; while a broad, well-defined system of trunk lines of improved roads is the common ground on which they meet and co-operate. With these conditions prevailing and with this line of united effort on the part of all concerned, it is not surprising that even in New England we have at present 2,000 miles of state highways.

"The idea of trunk line construction originated with the highway commission of Massachusetts. From the very beginning state highway building in Massachusetts was directed toward the construction of two main thoroughfares across the state from east to west, one at the north and one at the south, with connecting cross lines at such points as the topography of the country and the demands of public convenience might indicate.

"It is possible for a citizen of the west on arriving at the easterly New York state boundary to find in Massachusetts a through line of fine state highway across the entire length of the commonwealth. How this has worked to the advantage of Massachusetts is seen in the hundreds of motor cars of other state registration than our own speeding every day over our roads.

"In addition to what has been done by the states in the expenditure for better roads, the long stretches of trunk lines already constructed have inspired many communities to adopt plans for road betterment. The extent of improvement to New England roads which has come about in this way, and which is directly traceable to the inspiration of our state road systems, cannot be estimated in figures, but it is shown by the increased comfort and convenience of those who travel over the heretofore fearful country dirt roads.

"The National Grange has fostered the thought in the minds of its members and the farmers at large that all the people of these states help pay the taxes with which the roads are built and that therefore all classes are entitled to equal use of the roads.

"Because of this sentiment there is in New England no animosity on the part of the farmers toward the driver of the motor car who uses the road decently and legitimately, recognizing the fact that other people have equal rights with himself. In conclusion, having shown the past and the present, having told how the motor car has strengthened the good roads movement, bringing the city man to the aid of the farmer, I wish briefly to outline the future.

"With the trunk line system recognized everywhere throughout the country as the proper aim of good roads legislation, the next logical step will be the adoption of a great federal policy of aiding the states in the construction of connecting main lines. Many of the states in which such highways are most urgently needed have not the means to construct a system of roads connecting with the roads of the more wealthy and prosperous states. Here, then, is the proper field for federal appropriation to be expended under the supervision of a national highway engineering service, or other similar organization working in co-operation with the various states."

PREPARE FOR STATE AID

Hartford, Conn., Sept. 21.—In accordance with the usual custom Connecticut State Highway Commissioner James H. MacDonald is sending to all the towns in the state—there are 168 of them—the biennial circular letter and a copy of the law passed by the 1909 legislature. Under this new law it is necessary for towns at regular town meetings to declare their intention of accepting state aid. The towns are even instructed as to how to proceed to vote on the matter of road appropriations and after the town has voted an appropriation notice of it is filed with the highway commissioner. Under the present law all towns are classified under two heads, that is, those having a grand list of more than $1,250,000 shall receive three-fourths of the cost of the construction of any highway built, the towns contributing the remaining one-fourth. Towns with a grand list of less than $1,250,000 shall be entitled to seven-eighths of the expense incurred for highway improvement, and paying the remaining one-eighth. The state, under the new law, assumes payment for construction to contractors during the progress of the work up to the time of its final completion and acceptance after which the towns in which such improvement has been carried

on shall pay back to the state according to their classification. The entire appropriation for each year under the new law for the general use of the towns is $500,000 and in addition to this amount there is a general trunk line fund of $1,500,000 that is to be expended by the department within the time limit, which is 1913. The good roads workers in this section are greatly interested in the convention at Cleveland. Commissioner McDonald is in attendance and he is expected to stir up much enthusiasm.

STEVENS AND WINTON SHINE

San Francisco, Cal., Sept. 21—Special telegram—The third annual race meet given by Olympic Athletic Club at Tanforan track Sunday was one of the most interesting ever held. Because of recent harsh criticisms directed at track racing, there were not more than 3,500 people at the course. There were several surprises and sensations during the day. Remarkable work was done by the Stevens-Duryea big six, Winton 48 and Maxwell 30. The big Stevens is a 3-year-old car that is a veteran of the track and road hereabouts, having taken part in many contests. It never seems to lose any of its speed, however, and in the 10-mile free-for-all it rattled off the second, third and fourth miles in :59⅘, :59⅘ and :59⅘, while every subsequent mile except the final one was made in only a fraction of a second over the minute mark. The work of the Winton created a sensation. The car, a 1910 model, won three of the four events in which it was entered, and in the fight with the Stearns 30-60 car in the 10-mile race it furnished the most exciting finish ever seen in a western meet. When the cars flashed across the finishing line there was hardly 4 feet difference. Like the Winton, the Maxwell cars were revelations. The 30 model captured the race for cars listed at $2,000 and under, took first in the novelty race in which the model 20 was second and also won second place in another 10-mile race. Summaries:

Special match race, 5 miles—H. L. Owesney, 48-horsepower Winton, won; F. L. Hansen, 90-horsepower Palmer & Singer, second; time, 5:20.

Ten miles, $1,500 and under—C. O. King, 30-horsepower Maxwell, won; F. Murray, 18-horsepower Buick, second; Earl Cooper, 20-horsepower Maxwell, third; time, 11:35 2-5.

Handicap race for members of Olympic club, 5 miles—Max Rosenfeld, 60-horsepower Palmer & Singer, won; Jack Costello, 60-horsepower Thomas six, second; J. D. McCarthy, 40-horsepower National, third; time, 5:48 1-5.

Ten miles, $2,000 and under—Frank Murray, 40-horsepower Buick, won; King, 30-horsepower Maxwell, second; Earl Cooper, 20-horsepower Maxwell, third; time, 10:31 4-5.

Ten miles, $3,000 and under—Joe McDonald, 48-horsepower Winton, won; Frank Murray, 40-horsepower Buick, second; time, 10:47 3-5. Thomas did not finish.

Ten miles, $2,500 and over—Joe McDonald, 48-horsepower Winton, won; Charles Soules, 30-60-horsepower Stearns, second; time, 10:36. Palmer & Singer did not finish.

Novelty race, 1 mile, stock cars—C. O. King, 30-horsepower Maxwell, won; Earl Cooper, 20-horsepower Maxwell, second; Frank Murray, 18-horsepower Buick, third; Howard Warner, 40-horsepower Thomas, fourth.

Ten miles, free-for-all—C. Onthank, Stevens-Duryea, won; Joe Brewer, 60-horsepower Palmer & Singer, second; Charles Soules, 30-60-horsepower Stearns, third; Joe McDonald, 48-horsepower Winton, fourth; Howard Warner, 40-horsepower Thomas, fifth.

Big Field of Cars Start in Kansas' Reliability Run

Lincoln, Neb., Sept. 21—Special telegram—Fifty-five cars, forty-nine of them contestants in the Star reliability tour from Kansas City, arrived here this afternoon on the second lap of the 5 days' journey. The cars arrived in a driving rain storm, but they obtained such a good lead on their schedules during the fore part of the day that all but four arrived with time to spare. The tour started from Kansas City yesterday morning with fifty-seven cars. At Lawrence, Kan., 40 miles out, a Buick roadster driven by Roy Dillon and carrying E. R. Kirkland as observer ran into a telephone pole and the two men were badly hurt. Dillon had a leg broken and Kirkland was cut and bruised so badly he had to be taken to a hospital. The car was wrecked.

In the same town a Pennsylvania car, driven by Paul Kendall, skidded on a wet street while making 45 miles an hour. The car turned completely around twice and leaping the curbing crashed into a store front. A broken wheel was the only serious damage to the car. A new wheel was quickly supplied and the car reached Junction City, Kan., 160 miles out, the first night control, on time.

The first day's run dropped twelve cars in the dealers' division out of the perfect score class. A Royal Tourist, American Simplex, Pennsylvania, Knox, Studebaker-E-M-F, Mason, Auburn, Jackson, Reo and de Tamble suffered penalties. This list was augmented tonight by the addition of penalties to half a dozen additional cars. The touring committee will not announce today's penalties until early tomorrow morning.

Today's run was from Junction City here, 189 miles. The last 40 miles was over a muddy road and a hard storm with lightning and thunder drowning the noise of the exhausts. A Pennsylvania, Maxwell and Great Smith had a three-cornered collision while the Pennsylvania was trying to pass. Each of the cars was damaged but no one was hurt. The tour this far has been well conducted and remarkably successful from all viewpoints. The hospitality extended by citizens of towns along the route has been especially cordial and the tourists have not lacked the comforts of home, even in a dry country.

There are thirty-three entries competing in class A, in four divisions with a graded time schedule for each division. In class B, for private owners of cars, there are sixteen cars entered, and six non-contestant cars, including the pilot, official and two press cars, makes fifty-five cars in the tour. Thirty-four class A cars went over the starting line at Kansas City, but the Buick accident put that car out of the running. In addition the pilot car is a Studebaker-Garford, the official car a Dorris; the press cars a Knox and a Royal Tourist, while the baggage car is an Auto-car truck. Tomorrow the cars run to Omaha, 126 miles. This short run will give the tourists a chance to rest up for the 2 strenuous days to follow on the return to Kansas City. The entry list:

CLASS A

Car and driver	H. P.
Rambler, Collier	45
Rambler, Lundane	34
Franklin, C. S. Carris	42
Royal Tourist, Hargreaves	50
Pennsylvania, Kendall	50
Brush, Hinkle	7
Overland, Kirkland	30
American Simplex, Williamson	50
Reo, Mayhew	0-35
Marmon, Stillman	2-40
Velie, Jungihom	30
Auburn, Farnaley	24
Jackson, Fravel	6-40
Ohio, Hillock	35
De Tamble, Wolfe	16
Jackson, Lynch	6-40
Studebager E-M-F, Mrs. J. Wittman	30
Kisselkar, Post	40
Moon, Merrill	30
Mason, Snyder	28
Mason, Maytag	24
Maxwell, Hathaway	30
Gleason, Gleason	16
Buick, Reed	30
Buick, Breed	18
Great Western, Colaw	30
Cadillac, Greenlease	30
Franklin, J. S. Carris	28
Knox, Devasher	40
Great Smith, Hollister	45
Great Smith, Smith	45
Dorris, Hall	40
Auto Bug, Ross	24
Maxwell, Levendoski	30

CLASS B

Car and driver	H. P.
Pope-Hartford, C. A. Muehlebach	30
Chalmers-Detroit, Charles F. Wren	40
Velie, Ford Harvey	30
Rambler, S. F. Meyer	45
National, A. C. Wurmser	40
Interstate, H. D. Todd	30
Locomobile, Price L. Williams	30
Pope-Hartford, W. L. Alderson	40
Franklin, D. E. Gudgell	28
Franklin, S. B. Bell, Jr	42
Hupmobile, Pearl Covert	18
Premier, Frank E. Lott	28
Oldsmobile, I. E. Bernheimer	40
Premier, Harry F. Worth	30
Thomas, Lloyd H. Weber	40
Great Smith, W. W. Guthrie	45
Cadillac, Dr. B. H. Wheeler	25

BUSY SEASON IN TEXAS

Dallas, Tex., Sept. 19—Dealers and factory agents in this city state that they have taken orders and closed contracts for approximately 1,000 cars during the past week. Many dealers say there is yet a large territory in Texas which has not been canvassed and that there are more prospective buyers of cars now than ever before. Some even go so far as to state that Texas will be one of the leaders in the sale of motor cars for the year 1910. Orders come pouring in every day and there is no indication that the demand will decrease. Business is usually very dull during the summer months, but the sales this year continued nearly as heavy as during last winter, and now that the new models are beginning to come in dealers are fairly swamped with orders. All the leading dealers have taken orders for as many cars as they will be able to get from the factory this fall and next year.

NEW BOULEVARD PLANNED

Philadelphia, Pa., Sept. 21—Somerset and Johnstown, Pa., 28 miles apart, will be connected by an asphaltum-macadam boulevard before snow falls, the contracts having been awarded. This will connect with the new state road laid down on the old pike from Somerset to Bedford.

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Analyzing the Selden Patent Decision

THE decision handed down by Judge C. M. Hough in the circuit court for the southern district of New York on September 15, declaring the validity of the Selden patent in the celebrated suit against Henry Ford, is one of the foremost decisions as yet rendered in the motor car field in America, in that should Judge Hough's decision not be overruled in a higher court the Association of Licensed Automobile Manufacturers in America could bring suit against all independent car builders, compelling them to pay tribute to the Selden fold. Although this is the first decision, there is every reason to believe that the case will be carried to the supreme court of the land, in fact Mr. Ford has announced this, and it is reasonable to expect that there will be a stout and well-organized rallying of the independents to wage a fight in the higher courts and to ward off the possibility of having to pay tribute to the claims of George Selden.

JUDGE HOUGH'S lengthy review of the case, part of which is published on other pages of this issue, is a direct argument on the case. He takes as his big cornerstone in the evidence the question, "Did Selden in 1879, when he filed his original patent claims, have a clear mental conception of the combination of 'liquid hydro-carbon gas-engine of the compression type, a suitable running gear and steering gear and an intermediate clutch or disconnecting device and a suitable body,' and if so, did that conception of a combination of different parts constitute invention?" This was the big question to settle, deciding definitely whether the 1879 patent was valid or not. Judge Hough has ruled in the affirmative. He reviews the entire field of invention of gas-engines at that time to prove that Selden's engine was on a par with some of the others and that there was a very clear conception among a few at the time of a gas engine in which gases under compression were exploded within the cylinders. The examination of the gas-engine field is exhaustive, covering the works of Savelle, Dugald Clerk, Otto, Million and Rosenwald. The report shows that the only logical conclusion regarding the gas-engine was that at that time it was a vivid conception with many, of whom George Selden was one. The next step in validifying the patent was to prove that George B. Selden had a right to be classed among those who were credited with having a clear conception of the gas-engine in 1879. This is done in a brief resume of Selden's career, enumerating as it does his various patents and attainments.

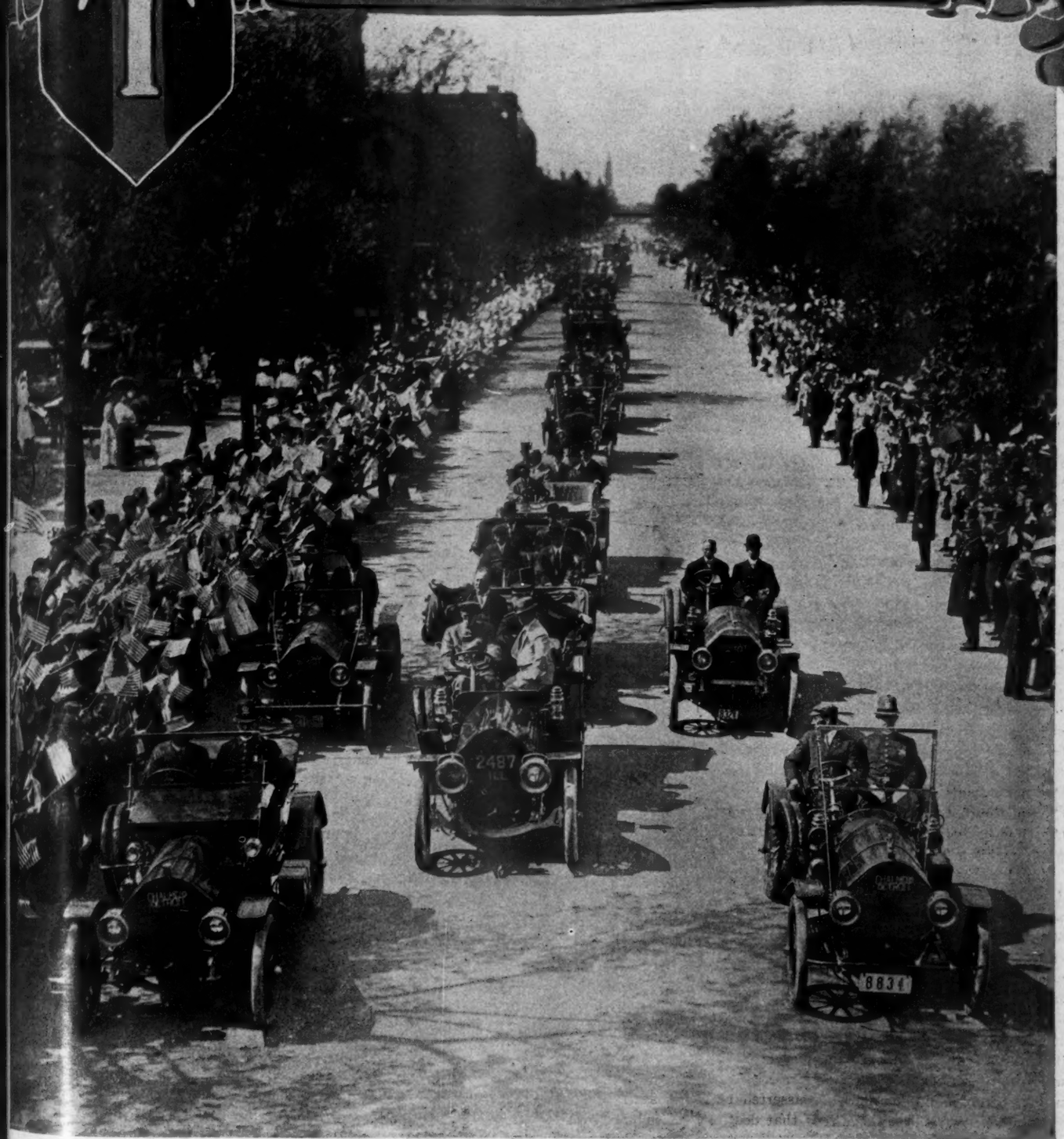
BUT the conception of the gas-engine was not enough to establish the validity of the patent. The Selden patent is not one on a new construction, but on a combination of several parts of a car. Selden did not invent anything new, he merely combined the gas-engine and the running gear with a clutch or disconnecting device. A knowledge of the gas-engine would be essential to a conception of a combination, and having established Selden's capabilities in that respect Judge Hough quotes that "Selden selected, adapted, modified, coördinated and organized the enumerated parts into a harmonious whole, capable of results never before achieved and of an importance best measured by the asserted fact that after 30 years no gasoline car has been produced that does not depend for success on a selection and organization of parts identical with, or equivalent to, that made by him in 1879." This careful selection and combining of parts, together with the conception of a gas-engine, is the real crux of the patent and establishes conclusively in the eyes of the court that Selden knew whereof he made claims.

AFTER 1879 followed a period of 16 years of inactivity, for it was not until 1895 that Selden got his final patent, which covered his combination for 17 years and which will expire in 1912. Judge Hough has outlined why nothing illegal was enacted in these 16 intervening years to mar the validity of a patent being granted in 1895 which was originally asked for in 1879. According to evidence during these 16 years Selden was rewording his different patent claims, which when forwarded to the patent office may have been rejected and Selden took the limit of 2 years each time in which to make his amendments. In this way, due to rejection of claims by patent examiners, year after year passed until 1895, when the final draft was accepted by the examiners and the patent was launched on its 17-year career. The evidence shows that "that the language last quoted in the specification describes the thing which Selden conceived and pictured in 1879." This the court has taken as prima facie proof that nothing illegal took place during the 16 years when Selden did not make a single vehicle, although other persons were bringing out inventions and organizing companies and building vehicles.

ONE of the points made by the defendants in the suit was that the cars built by the independents do not infringe on the Selden combination patent if the gas-engine is not substantially identical with that described in drawings and specifications, notwithstanding the language of the original claim, "liquid hydro-carbon gas-engine of the compression type." The fact that Selden used a spray of petroleum which was mixed with and carried into the combustion chamber by compressed air, whereas the present motors use a carbureter, does not alter facts or the validity of Selden's original claims. These and other similar contentions were overruled by the court on the ground that a "liquid hydro-carbon compression engine" is a sufficiently comprehensive definition for a motor car engine as used today. On this assumption the court ruled that Selden had ground for a specially broad pioneer patent, in which the rule of equivalents plays a surprisingly strong part, much stronger in fact than is the case in many present day patents. Judge Hough's decision in this respect should preclude any possibility of a patent on such an accessory as a carbureter.

THE fact that a circuit court has given these interpretations to a patent situation will add immeasurable interest to the case until such time as an interpretation of these conditions is handed down by a supreme court; and on such a decision enormous moment attaches because of similar situations in connection with other patents, not necessarily concerned with motor cars. To many after waiting 5 years, during which the evidence on the case has been taken, the result is a dire disappointment, in view of the fact that equivalents are allowed and considered just as important by the court as if their exact details were specified in the original claims. The court sees nothing but a broad pioneer patent in the original gas-engine, clutch and running gear combination of 1879, and considers this valid irrespective of the myriad improvements that may be made in any one or in all of the units that enter into the combination. With the court it is the combination that has been sustained. The court holds that it makes no difference whether the original Selden car was operative or not, resting as it does on the fact that Selden conceived in 1879 a combination of parts without which there is not a gasoline car today that can get along without, and in this conception the court rules the real invention consists.

Chicago's Motor Welcome to President Taft



NOT A HORSE IN CHICAGO'S PRESIDENTIAL PARADE!

So Accustomed Are Chicagoans to the Motor Car that No Comment Was Excited Last Thursday When President Taft Visited the Windy City and Used the Motor Car Exclusively— The Parade Followed the Boulevards to the Business District and the Feature Was that for the First Time in Chicago's History the President Did Not Ride in a Horse-Drawn Vehicle

CHICAGO AMATEURS IN A TEAM RELIABILITY

CHICAGO, Sept. 19—Tables were turned by the Chicago Automobile Club on its friendly rival, the Chicago Athletic Association, last Thursday when the two organizations met in their second annual inter-club reliability team match, Captain N. H. Van Sicklen's clever pilots capturing the honors which in this case meant the huge shield which is up for perpetual competition between the two clubs. Another bit of plunder that fell to the lot of the Automobile Club men was a cup put up by F. H. Rawson, treasurer of the C. A. A., which becomes the permanent possession of the winning club which in this instance was the C. A. C. There wasn't much difference between the two teams, a matter of only 23.46 points, and in a way the Cherry Circle had it on its conqueror in that it returned eleven perfect scores out of a possible thirteen, while the winning team had three down out of ten. The gross score was 180 points for the C. A. A. and 115 for the C. A. C. The loser's total was decreased to 138.46, though, by the fractional penalization made necessary by the uneven sides—thirteen on one team and ten on the other.

The run, though, demonstrated that the amateurs are really better drivers than they thought, for of the twenty-three that made the 150-mile journey Thursday eighteen of them went through without mechanical trouble or being late at controls. The 18-miles-an-hour schedule was easy to maintain and only two penalizations were for being late at controls. Those who got into trouble were Frank X Mudd, T. J. Hyman and F. R. Robbins, of the Chicago Automobile Club team, and R. T. Laughlin and Charles T. Knisely, of the C. A. C. Mudd started out with a leaky radiator which bothered him all the way and, coupled with tire trouble, made him late in getting home. Hyman was penalized for two motor stops, while Robbins was demerited for being late in checking in at the noon control, caused by stopping at Crown Point for gasoline and imagining the time he took for this would be deducted from his schedule.

On the other side of the fence Laughlin drew the big penalty, brought about for work done on his car at Cedar Lake, while Captain Knisely was penalized for motor stops. Otherwise the Cherry Circle forces were in good order and went through the test like veterans.

The conditions of the match were not as strenuous as prevail in some of the reliability runs. Being open only to owners who were in no way affiliated with the motor trade, there was no demand for a technical examination of the cars, the run being more in the nature of a test of driving ability and not of cars. Therefore, the demerits were handed out for motor stops, for repairs, adjustments or replacements and for being late at controls. These were just enough to make the match a sporting proposition and close in that that the chances of many being penalized were slight.

As laid out the course took in 150 miles, mostly in Indiana, the route running into the Hoosier state through the old channels and making Cedar Lake the noon control. Cedar Lake is on the western leg of the Cobe cup circuit and naturally that historic course was an object of interest, so it was included in the route. From the noon stop the contestants bore away from Crown Point to Valparaiso and from there came in through Hobart and Highlands. The roads were in splendid condition except for the entrance into Chicago which was as usual in poor shape.

The club men showed great interest in the match and among the passengers and contestants there were several of the directors of the two organizations. At the completion of the match both sides dined at the Chicago Automobile Club, the bill being paid by the losing team. The report of the judges was as follows:

CHICAGO AUTOMOBILE CLUB

Car No.	Driver	Car	Score
1	N. H. Van Sicklen	Apperson	Perfect
3	Frank X. Mudd	Ford	60 points
5	Walter Egermann	Rambler	Perfect
9	Carroll Shaffer	Stevens-Duryea	Perfect
11	B. B. Ayers	Cadillac	Perfect
15	T. J. Hyman	Chalmers-Detroit	50 points
17	R. O. Evans	Apperson	Perfect
19	Godfrey Baackes	Peerless	Perfect
21	Sidney S. Gorham	Jewel	Perfect
23	F. R. Robbins	Stoddard-Dayton	5 points

CHICAGO ATHLETIC ASSOCIATION

2	C. T. Knisely	Palmer & Singer	35 points
4	S. W. Hamm	Locomobile	Perfect
6	R. T. Laughlin	White	145 points
3	W. C. Thorne	Palmer & Singer	Perfect
10	H. N. Scott	Locomobile	Perfect
12	H. C. Knisely	Premier	Perfect
14	G. F. Griffin	Peerless	Perfect
16	E. E. Vail	Stoddard-Dayton	Perfect
18	Albert Coon	Stoddard-Dayton	Perfect
20	F. W. Wentworth	Rambler	Perfect
22	Eugene Benzat	Stoddard-Dayton	Perfect
24	W. E. Davis	Mitchell	Perfect
34	C. C. Ireland	Stoddard-Dayton	Perfect

RUSSIA'S FIRST RELIABILITY

St. Petersburg, Sept. 2—Russia's first reliability trials ended in a clean sweep of nearly every prize by German cars. There were also French, English, Belgian, American and Italian cars among the contestants. The trials were held from St. Petersburg to Riga and return, the total distance being equal to about 655 miles. On the first day, August 27, the contestants drove to Pskof, 161.7 miles from here. On the following day the cars were run to Riga, a distance of 164.8 miles. In Riga there was supposed to be a day of resting on August 29, but instead there were speed trials over the distance of 1 kilometer, receptions and banquets. Everyone started on the way back to St. Petersburg over the same course and in two stages, on August 30. There were twenty-three starting cars in St. Petersburg and nineteen of them came back without having had serious trouble, the other four being laid up en route. There were five classes of cars, those with more than 4.9 inches bore and which consisted of an Opel, a Durkopp, a Pipe and a Rochet-Schneider. In class 2 were cars with 4.3 to 4.9 inches bore and stroke. These cars were a Mercedes, a Benz and a Berliet. In class 3, for cars with 3.9 to 4.3 inches bore, there were two Mercedes, a Benz, an Adler, a Raf and a Russo-Baltic. In class 4, for cars of from 3.3 to 3.9 inches bore, there were a Ford and two Pipes. In class 5, for cars of up to 3.3 inches bore, the starters were three Humbers, a Fiat, two Gaggenau and an Adler. All stops except those made for reason of tire troubles were recorded by the observer and counted against the car. Stopping the motor for any reason meant a loss of 1 point for every minute of stopping. Stopping the car for replenishing also caused the loss of 1 point per minute, when made en route. Tardy arrival at a control caused a loss of 1 point per minute up to 15 minutes, 3 points per minute for a delay of 16 to 30 minutes, 5 points per minute for a delay of 31 minutes to 1 hour and 10 points thereafter. The speed at which cars were driven was not taken into consideration. The observers were in several instances army officers delegated by the war department. So much interest was shown in the trials that, according to a report, the emperor had one of his aides, a high ranking officer, follow the trials in order to make a report to him specially. Benz cars took the lion's share in prizes, winning the emperor's prize, those offered by the war department, the Automobile Club of Russia, the Grand Duc Michel and several honor prizes. Other first prize winners were the Mercedes, Adler, Opel, Pipe and Humber. The 18-35 horsepower Adler, of class 3, is said to have made the best time on the run, covering the 655 miles of actual road traveling in 16 hours, 31 minutes, which is a splendid record, when the poor roads of this country are taken into account. In the speed trials at 1 kilometer Fritz Erle in a Benz had no trouble in making the fastest time.

REPAIRING SNOQUALMIE ROAD

Seattle, Wash., Sept. 19—Announcement has been made from the office of the Washington state highway commission that more work is to be done on the Snoqualmie state road. The Snoqualmie road runs from Easton to the east bank of Lake Kitchelos and over Snoqualmie pass into King county. The new road which is to be built will be several feet higher than the old road, which was covered over with water when the government installed the dam at the foot of Lake Kitchelos. At present about 5 miles of the road has been built and put in excellent shape. The road is open for traffic clear through, but in places is in very bad condition.

PRESIDENTIAL PARADE WITHOUT HORSES

CHICAGO, Sept. 17—President Taft visited Chicago yesterday and in the reception accorded him the motor car played a most important part. In a way the presidential visit marked a most important epoch in motoring history and at the same time demonstrated the utility of the motor car in a most effective manner. It also marked the passing of the horse because, for the first time—in Chicago at any rate—the entire welcoming delegation rode in motor cars, and there was not an equine equipage to be seen during the formal welcome. The president came in over the Lake Shore road and got off at Garfield boulevard, some 10 miles from his hotel, in order that he might review the school children of Chicago who, 150,000 strong, were lined up on each side of Garfield boulevard and Michigan avenue. The president climbed into the tonneau of a Thomas six with his personal attendants and the car was made the center of a small square. At each of the four corners was a Chalmers-Detroit roadster each carrying a policeman or a secret service officer. Back of this square came the motor cars in which rode the prominent Chicagoans who made up the welcoming party, a long line which was remarkable because of the absence of the horses. In this manner the president drove east in Garfield boulevard and then north in Michigan avenue to the Congress hotel, a distance of about 10 miles. This was easily made whereas, as it was pointed out, it would have been well-nigh impossible to have used horses for the same purpose, because the president was traveling on a fast schedule and horses could not have kept up to it. Therefore, if it had not been for the motor hundreds of thousands of Chicagoans would have been unable to see the nation's head.

The use of the motor car by the president did not end with his arrival at the hotel. He used it to go to the Art Institute and again to make the trip to the ball game. In the evening, after the festivities had come to an end, he climbed aboard again and was whisked to the Northwestern depot.

The visit of the president naturally stirred up a friendly rivalry among the dealers along the row, each of those handling big cars being anxious to secure the coveted privilege of carrying the chief executive. All sorts of wires were pulled, heads of committees were appealed to and there was great excitement in the trade. Half a dozen dealers claimed they had been awarded the plum and finally it was stated the honors would be spread around, the president riding in one make of car in the parade, in another going to the ball game and still another going to the depot. But it developed that the Thomas did the carrying, the president using H. A. Stilwell's car all day. Back of this is a story of presidential etiquette. It seems that it is extremely bad form to turn your back on the president when riding with him. Mr. Stilwell seems to have been the only one of the aspirants to know this, for he quietly had the auxiliary seats in his car changed so that the occupants could face the president. His was the only car fixed this way, so the powers that be declined to have anything to do with the others.

Uses American in Milwaukee

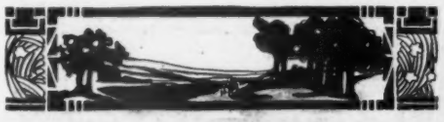
Milwaukee, Wis., Sept. 17—The American was the official car of President Taft on the occasion of his visit to Milwaukee today. The American Tourist owned by A. F. Timme carried the precious cargo the entire time the president was in Milwaukee. Mr. Timme handled the wheel himself, and as a mark of appreciation the president voluntarily wrote his autograph on the limousine ceiling in ink.

LITTLE GLIDDEN AWARDS MADE

Minneapolis, Minn., Sept. 20—The second of the four trophies offered in the recent Little Glidden tour of the Minnesota State Automobile Association, from the Twin Cities to Fargo, has been awarded to the Barclay Automobile Co.'s Chalmers-Detroit. This Bluebird is the same car which won the Detroit trophy in this year's Glidden tour and the Tribune trophy in the Minneapolis-Duluth run. Minneapolis cars have taken these two trophies, the Brush runabout getting the Gregg silver pitcher in the runabout class costing under $1,000. The Dispatch and Johnson trophies will both go to the same car, the former to be competed for each year and the latter becoming the permanent property of the winner this year. The award has not been made as yet as errors are claimed to have been found in the gasoline record of the Chalmers-Detroit car of H. Stanley Johnson of St. Paul, which, if proven, will put H. J. Clark's Packard, a Minneapolis entry, far in the lead in the economy feature. Referee Bazille held a hearing last week and referred the matter back to the technical committee, requesting the committee to reconsider the standings of the cars according to the new gasoline record discovered.

TOURIST TAX IN FRANCE

Chicago, Sept. 20—A cablegram to the News from Paris announces that the budget commission of the chamber of deputies has decided to collect a tax based on horsepower and length of stay in the country from all motoring tourists. There will be a fee of $10 collected from a two-passenger car for a stay in the country of 360 days, while for over 2 there will be a charge of $18. If the stay in the country is less than 360 days the fee will be reduced in proportion. The horsepower tax will amount to an additional 20 per cent, of which none will be returned. For a false declaration or intention to evade the taxes there will be a fine equal to four times the amount involved. Where a tourist stays in France more than 1 month and less than 2 he must pay for the longer period. He will be allowed the first 10 days free, which will give him an opportunity to pass through the country.



CLUB DISSATISFIED WITH A. A. A.

Columbus, O., Sept. 18—A special meeting of the Columbus Automobile Club will be called soon for the purpose of discussing the advisability of withdrawing from the Ohio Automobile Association, which is affiliated with the American Automobile Association. Dissatisfaction over the refusal of the Ohio state association to share in the expenses of litigation incidental to securing a favorable decision on the matter of municipal licensing of motor cars is the cause of the proposed action. The Columbus Automobile Club started and supported the litigation through the state courts and finally the ordinance licensing motor cars was declared unconstitutional. It meant the saving of thousands of dollars by owners of cars and applies alike in Cleveland and Cincinnati as in Columbus.

PRACTICAL ROAD WORK

Philadelphia, Pa., Sept. 12—During the past summer the Automobile Club of Philadelphia has been engaged in a practical system of road improvement which has worked out so well that the scheme doubtless will be adopted by clubs all over the country. Chairman W. O. Griffith has been gathering together the road supervisors of certain townships and the directors of the various turnpike companies, and, taking them in his car, points out the places which, in his opinion, should be fixed up at once. The plan has worked like a charm, with the result that numerous bad spots on the roads leading into the city have been eliminated. Up on the Trappe turnpike, which forms a portion of the New York-Philadelphia route, there was one bad stretch several miles long which, if fixed up, would give a good road all the was to the Jersey capital—the club thinks its energies should be devoted to Pennsylvania, leaving the Jerseymen to attend to their end of it. Accordingly, Chairman Griffith bought a King split-log drag and induced the turnpike company to plow out the ditch, put on a top dressing of fine stone and roll it. The result was such a particularly fine stretch of road where it had always been so particularly bad that the turnpike people and the road supervisors are trying to live up to the reputations they have attained as good roads enthusiasts and are fixing up all the bad spots in their respective bailiwicks.

POPE-HARTFORD IS FIRST UP MOUNT BALDY

LOS ANGELES, Cal., Sept. 19—Special telegram—William R. Ruess, driving his own entry, the Pope-Hartford, won the fourth annual Mount Baldy road race today, defeating the Apperson Jackrabbit, which won the Santa Monica road race, and a 40-horsepower White steamer. As the city officials forced contestants to start at the city limits the distance was cut down to 93 miles. The Pope-Hartford made the run to the mountain top in 3 hours 4 seconds. The White steamer, driven by Gus Seyfried, turned turtle 30 miles after the start. Seyfried and Mechanic Forbes were badly injured, but not fatally. The accident occurred 8 miles from the scene of a similar mishap to the Elmore in the race 2 years ago. At the time of the accident the White was 2 minutes behind the Pope-Hartford and 1 minute behind the Apperson. The car was not greatly damaged. A bad road caused the car to bounce about in the ruts. Hanshue in the Apperson lost many minutes through tire troubles, making a number of miles to a tire station on the rim.

Ruess made a fine drive in the Pope, having the lead at every part of the race. He gained the front at Newhall and steadily increased his advantage to the finish. Ruess displayed remarkable skill in the dangerous Soledad canyon. Hanshue drove his usual careful race, taking no chances. Ruess led at Acton by 17 minutes, and this he increased to 26 minutes 10 miles from the finish.

The winner gets a large trophy and a $1,500 purse. The race started at 5:30 this morning, the Apperson leading the way and the Pope bringing up the rear, the cars being 30 minutes apart. A big crowd lined the course.

CLIMBING MOUNT BALDY

HUDSON WINS A 24-HOUR RACE

Seattle, Wash., Sept. 16—Unmarred by accident and marked by splendid performances, the second day of Seattle's motor carnival was held Saturday at the Meadows. Two big races for stock chassis, coupled with dashes against time, held a crowd of about 3,000 people until nearly 6 o'clock in the evening. No sooner were the shorter races over than the cars in the 24-hour endurance contest came out upon the track and started their steady whirl around the oval, that did not end until early on the morning of the 12th.

In the 10-mile stock chassis race, a Pullman, driven by G. W. Marine, took the lower curve at such speed that it skidded around and finally left the track, running into the grass. Fences, which formerly stood about the track, had been removed, otherwise the machine would have crashed through it and a fatality would have resulted. This was the nearest approach to an accident during the afternoon.

The day closed with a 50-mile race. The entries were a Stearns, with Charles Soules driving; a Pullman, with C. W. Marine driving, and an Acme, C. S. Cummings driver. The Pullman and Acme had previously contested in the 10-mile race, the Acme winning. The 50-mile contest resolved itself into a question of generalship, and Charley Soules and the Stearns succeeded in routing Cummings and the Acme. The Stearns won in 59 minutes, 28 seconds, half a mile ahead of the Acme.

After the 50-mile race the 24-hour marathoners came out on the track and began to whir around. The Hudson car won the event, finishing fifty-five laps ahead of the White steamer. The distance covered by the Hudson was 706 miles, and the White 649. The Allen-Kingston, which was far in the lead in the afternoon, broke a transmission gear at 6 o'clock and dropped out. There was not an accident during the entire race, although most of the running was done at night.

The Hudson, besides winning the first 24-hour race ever run in Seattle, receives a prize of $500, and the White car second place and a prize of $300.

At one time in the 24-hour race the drivers of the three contesting machines had a close call. The Hudson had pulled up in the repair camp in the paddock for a change of tires and to take on gasoline and oil, when, through someone's mistake, it was permitted to back out on to the course again, just as the White and Allen-Kingston rushed into the stretch. According to the rules, the Hudson should have hugged the outside rail until the other two cars had passed it, but, instead of that, its driver cut across the track to the pole just after going past the judges stand. The Allen-Kingston had passed the White and was cutting in to take the pole. The three cars came abreast together upon reaching the first turn, which was in the worst shape of any place on the mile track. The Allen-Kingston clung to the pole, the Hudson suddenly swerved out as though its driver had just remembered his instructions and the White was pocketed. The White struck the soft mud and just wiggled around. The heady work of Fred Dundee, her driver, was all that saved the White from colliding with the gasoline machines, all three going at top speed. At no time was there more than 3 inches of leeway between the White car and the two others, and a sigh of relief was heard when the cars cleared the bad turn with the Allen-Kingston leading, Hudson second and White third.

SUCCESSFUL SYRACUSE MEET

Syracuse, N. Y., Sept. 20—So well pleased are motor enthusiasts of Syracuse with the success of the meeting at the New York state fair that a greater meet for next season is now being talked on. Not only was the success of the races gratifying to the promoters, but the attendance brought smiles on the faces of the state fair commission. The greatest crowd ever

W. R. RUESS IN POPE-HARTFORD, WINNER OF MOUNT BALDY RACE

assembled within the racing inclosure at the New York state fair grounds saw cars circle the track at a mile a minute and better Saturday afternoon. Vice-President James S. Sherman was one of the most enthusiastic spectators. There were 1,200 cars filled with people. Barney Oldfield twice failed to lower the mile circular track record of :50⅘. The best he could do was :53⅝ and :53⅖. Oldfield negotiated 25 miles in a Knox machine in 25:40. The race meet was arranged by the Syracuse Automobile Dealers' Association, the Automobile Club of Syracuse and the Syracuse Motor Cycle Club. Summaries:

Five miles for gasoline stock cars selling for $1,250 and under—Hanna, Hudson, won; See, Maxwell, second; Costello, Maxwell, third. Time, 5:49½.

Five miles, free-for-all, best two in three heats, first heat—Barney Oldfield, Benz, won; C. H. Bowers, Bowers, second. Time, 5:12½.

Second heat—Barney Oldfield, Benz, won; Bowers, Bowers, second. Time, 5:06¾.

Five miles, for gasoline stock cars, amateur drivers only—James Barclay, Thomas, won; See, Maxwell, second; Costello, Maxwell, third. Time, 5:55 1-5.

Ten miles, for gasoline stock cars, open—Oldfield, Knox, won; See, Maxwell, second; Costello, Maxwell, third. Time, 10:57 3-5.

To lower mile record on circular track—Barney Oldfield, Benz. Time, :53 3-5 and :53 2-5.

Twenty-five miles for gasoline stock cars, open—Oldfield, Knox, won; C. H. Bowers, Peerless, second; See, Maxwell, third. Time, 25:40.

THIRTEEN PARK RACE ENTRIES

Philadelphia, Pa., Sept. 20—Robertson, last year's winner of the Fairmount park 200-mile stock chassis race, will try for the honors at the second running of that fixture, Saturday, October 9. It is not yet known just which entry he will drive, but in all probability it will be the Bergdoll Simplex. Other shining lights who will be at the wheels of the various flyers are Len Zengel, the ex-Chadwick crack, who, although now with his first love, the Pennsylvania, will drive the Chadwick entry; Willie Haupt, also an ex-Chadwickite, who will guide one of the Bergdoll Thomases; Bill Wallace, who hopes to land his Palmer-Singer in front, and Herbert Lytle, who is banking on his Apperson Jackrabbit. Mulford will in all likelihood drive the Lozier entry. As two Chalmers-Detroit entries have been promised, Lorimer and Dingley are also likely to be in the line-up. W. C. Longstreth, local Pullman and Alco representative, has entered a car, but just which of the two it will be he refuses to announce till next week. There are now thirteen paid-up entries, leaving still seven places of the even score which is all the A. A. A. racing authorities will allow to start in the 7.8-mile course.

MORE RECORDS FOR THE FIAT

Grand Rapids, Mich., Sept. 20—In the Fiat Cyclone in which he broke the world's mile record for circular tracks at Minneapolis, Ralph de Palma smashed three world's records on the 1-mile circular track at Comstock park Friday during the progress of the West Michigan state fair here. The records were for the 15, 20 and 25 miles on circular 1-mile tracks. The time by laps was as follows:

AT SYRACUSE MEET, SHOWING 1,200 CARS PARKED

Miles	Time	Miles	Time
1	1:06	14	13:05 2-5
2	2:03	15	13:57
3	2:58 1-5	16	14:53
4	3:55	17	15:46
5	4:50	18	16:41 3-5
6	5:45 2-5	19	17:36 2-5
7	6:40	20	18:30 4-5
8	7:34 2-5	21	19:24
9	8:29	22	20:17
10	9:22 3-5	23	21:12
11	10:19 1-5	24	22:06
12	11:14	25	22:59 3-5
13	12:08		

The previous records for the 15, 20 and 25 miles on circular tracks were as follows:

Miles	Holder	Machine	Former record
15	Oldfield	Peerless	14:03 3-5
20	Oldfield	Peerless	18:45 2-5
25	De Palma	Fiat	23:35

The speed trials were held under the auspices of the Grand Rapids Automobile Club with the sanction of the A. A. A. Record-smashing alone did not bother de Palma. He set a new record for the track, going the mile in :53, clipping 4 seconds from the time recently set by Chevrolet in a Buick. In the 2-mile exhibition he gave another world's record a rub when he went the distance in 1:47 flat, while with Oldfield he holds credit for the distance at 1:46⅗. De Palma furnished the big feature of the day after Walter Christie, who had spent a day and night repairing his 135-horsepower front-driver, went out in the mile exhibition but did not come back. Kilpatrick got his 120-horsepower Hotchkiss to travel six laps in the 10-mile free-for-all, then withdrew to the side of the track with a broken shaft and stripped transmission gears. Summaries:

AT SYRACUSE—A MAXWELL FINISH

Five-mile race for amateurs—Dean, Boyden, won; Vanderberg, Buick, second; Fassett, Reo, third. Time, 6:21 2-5.

Ten-mile handicap—De Palma, Fiat, scratch, won; Dean, Boyden, 30 seconds, second; Vanderberg, Buick, 30 seconds, third; Kilpatrick, Hotchkiss, withdrew. Time, 10:00 2-5.

Twenty-five-mile exhibition—De Palma, Fiat, won. Time, 22:59 3-5. Former world's record, 23:35, held by de Palma.

RELAY IS ABANDONED

Philadelphia, Pa., Sept. 20—A fatal accident on the first relay brought to an abrupt termination the transcontinental trip promoted by the Press, of this city, which started from the city hall at 12:30 p. m. on Saturday last. At Robesonia, 66 miles from the start, the Acme, to which was accorded the honor of covering the first relay, got away from Driver Clifford B. Ely at a trolley crossing, the car skidded, wrenching loose the tonneau and sending its passengers out to the left of the road. Henry L. Buckley, motor editor of the Press, one of the two couriers, was almost instantly killed. William H. Brown, a friend of Driver Ely, is in a serious condition. Ely, his mechanic, and another passenger were fortunate to escape with a few cuts and bruises. The Press authorities immediately called off the undertaking, wiring ahead to all the participants the details of the mishap.

BRICK FOR SPEEDWAY

Indianapolis, Ind., Sept. 20—Following a consideration of several materials, the management of the Indianapolis motor speedway has decided to pave the course with paving brick and work already has started. It is estimated that 3,500,000 brick will be used for the purpose, together with immense quantities of cement. The present composition of the track will serve as a foundation or base for the brick. One of the advantages of a brick surface will be that races can be run in any kind of weather.

MITCHELL RANGER COMPLETES ITS LONG RUN

SAN FRANCISCO, Cal., Sept. 20.—Special telegram — Completing a trip of more than 3,500 miles across the continent from New York to San Francisco, the Mitchell Ranger, carrying dispatches from General Wood, at New York, to General Weston, at the Presidio here, made a triumphal entry into this city Sunday afternoon. A detachment of the California Coast Artillery, detailed by Colonel Hewes, made the trip as far as Stockton in motor cars to meet the army car and guided it on the last 100 miles of the journey. Arriving at San Francisco, the Ranger headed a procession of twenty-five cars up Market street, stopping first at the United States army headquarters in the Chronicle building and then continuing on to the Presidio, where a representative of General Weston, who is ill, received General Wood's letter. The car was in fine shape when it reached here, the only delays on the trip being caused by bad roads or flood conditions. The machine was greeted here by General Sales Manager James W. Gilson, of the Mitchell Motor Car Co. The car was the first of the 1910 models turned out by Designer Bate. Gilson was well pleased with the performance, and army officials who had followed the progress of the car with the greatest interest expressed the belief that such cars undoubtedly would be a big factor in warfare. The Ranger left New York city August 19.

Lieutenant Rosenthal, who bore the dispatches sent by General Wood to General Weston here and was in charge of the party, was a strong motor enthusiast in spite of his hard trip. He said: "We left New York with General Wood's message on August 19, and although we made no attempt at record-breaking, doing all our driving in the daylight, we reached Chicago about 48 hours ahead of schedule. We were escorted out of Chicago by a detachment of mounted police and we breezed along merrily until we reached Dixon, Ill., where we hit a rain storm that accompanied us all through Iowa. We reached Julesburg, Colo., August 31, and from there on words are inadequate to describe the conditions we encountered. After entering Colorado we made a detour of 30 miles because of washouts, during which we visited the scene of the attack on Julesburg by the Sioux and Cheyennes some years ago. Our next stop was at Pine Bluffs, Wyo., which we reached just after the sheriff had rescued a horse thief from a mob that wanted to string him up to a telegraph pole. That night we had to sleep in the mountains. Eleven miles from Cheyenne an irrigation ditch burst and the rushing waters washed out the roads tributary to it. We reached Cheyenne Saturday and were visited by several officers and soldiers from Fort Russell. We then used the railroad tracks to Laramie, which is a great mineral center. We encountered the worst rains in Wyoming's history in this section, as it had been pouring continuously for 5 days. We next poked along from Laramie to Hanna in a downpour, and so many bridges had been washed away that we had to borrow rails from beside the railroad tracks to make corduroy roads. Outside of Hanna we were stuck in the mud for 3 hours and had to commandeer some teams to haul us out. After reaching Fort Steele bridge we found the approach to the county bridge and the bridge itself, 100 feet long, washed out, and we were then forced to get an order from the Union Pacific superintendent to use the Fort Steele bridge. The next 18 miles to Rawlins was along the foothills in a heavy rain. Thayer Junction, which was our next halt, and which is known as Death Valley, we went through at a snail's pace, using canvas to cover the alkali ditches and get traction. By going through Rock Springs, which is said to be the biggest coal mining town in the west, we were able to make up some time on the way to Granger, because the sun bakes the red desert top and gave us some fair going occasionally. We hit a severe snow storm about 30 miles outside of Granger before we reached Evanston, which we left next morning almost at zero.

"Incidentally, I might mention that the sand of the Nevada desert was easy going as compared with the mud of the further eastern states. Ogden was our next stop, and after leaving that bustling city we made a detour of the Great Salt lake and hit fine roads, in comparison with what we had been having. The going through Montello and Winnemucca was fairly good, although some sandy spots made us take to the sagebrush now and then. We reached Reno, at the foot of the Sierra Nevada, on Thursday, and left for Carson Friday morning. Then our route took us through Glenbrook, on the shore of Lake Tahoe, and we skirted along the water's edge to Lakeside. Then we encountered a rise of 3,000 feet to the summit of the Sierra Nevada—one entire rise from the water level being over 7,000 feet. Then there came 50 miles over a magnificent state road into Placerville—all down grade and the finest kind of traveling. From Placerville we pushed along over good roads to Sacramento and Stockton."

AMATEUR RUN ANNOUNCED

Indianapolis, Ind., Sept. 21—Plans were announced today for an amateur sociability run which will be made by owners and their drivers to Mudlavia Springs, October 2-3. This probably will take the place of the annual reliability run, which has been conducted in the past by the Indianapolis Automobile Trade Association. Dealers and manufacturers have taken little interest in the plan for a reliability run, owing to the fact that they have had difficulty in getting enough cars to fill orders, much less to enter in contests. Knowing this attitude, Paul Smith, of the Indianapolis Motor Car Co., suggested a sociability run for private owners and their drivers. The committee that is arranging the run is composed of Charles Mayer, Miss Katrina Fertig, Bernard Saltzgaber, Paul Smith and Frank B. Willis. Robert C. Kramer, of Mudlavia Springs, is also acting as an ex-officio member. The run will not be conducted under the auspices of any particular organization and there will be few rules to confront the contestants. Chauffeurs who participate will be required to have been in the service of their employer at least 30 days prior to the contest. The cars will leave University park at 7 o'clock Saturday morning, leaving at 1-minute intervals. The run to Mudlavia Springs will be 87 miles and will be by way of the Crawfordsville road to Crawfordsville and then through Newton, New Richmond and Attica to Mudlavia Springs. At the conclusion of the first day's run there will be a hill-climb on Devil's Elbow hill, one of the steepest and most dangerous in Indiana. It is about ⅓ mile long and has a 15 per cent grade, and there are one or two bad turns. Mr. Kramer has arranged to grade the hill and bank the turns at his own expense. He will also install a private timing device. There will also be a touch of the original in the hill-climb. There will be several classes and the winners of each class will then participate in a handicap climb. Cars of the larger classes will be handicapped so that the smaller cars will have an equal chance. The winner of the handicap will be presented with a silver loving cup.

RULES FOR SMALL-CAR TRIALS

Paris, Sept. 10—Today l'Auto publishes the rules and regulations to govern its small-car reliability trials, scheduled to take place December 5-9. As has been mentioned previously, this is the first event of this kind for small cars promoted in France and when its duration is taken into consideration—daily runs for 15 days—it may be classed as the longest little vehicle trials ever promoted. If the comments of manufacturers at the announcement of the event may be taken as seriously, there is no question but that there will be a large number of entries. Not only in France but in Germany, Belgium and Spain the event has created much interest. Among the best-known makers of voiturettes who have expressed their desire to enter are the Sizaire-Naudin, de Dion-Bouton, Werner, Opel, F. N. and Hispana-Suiza. Now that the rules have become known, actual entries will soon be coming in. The regulations in their most important provisions are as follows:

From December 5 to 19 will be conducted an endurance and regularity trial for voiturettes. By voiturette is meant a car having four wheels, weighing empty not less than 1,100 pounds, and whose motors come within the following limits: Monocylinders, maximum bore, 4.9 inches; maximum stroke, 5.9 inches. Two-cylinder cars, maximum bore, 3.9 inches; max-

imum stroke, 5.1 inches. Four-cylinder cars, maximum bore, 3.1 inches; maximum stroke, 4.7 inches. All competing cars must be provided with a body seating two persons, a top, a wind shield, lamps, mudguards, steps. Furthermore, the cars must conform in every way to the cars described in the concern's catalogs.

The trials are open for manufacturers, who may enter not more than three cars in each of the three classes. In case a manufacturer does not enter three cars, then that number may be made up by agents or other people, with the manufacturer's consent.

The trials will be held over a total distance of 3,000 kilometers—1,865 miles—which will be covered in fifteen daily stages of as near as possible 125 miles each. The start and finish will be Paris for each stage. Each morning the driver of each car will be permitted to enter into the parking space, but only at the hour set for his start. The driver will have to start his car and leave without otherwise doing anything to his car. If after 5 minutes a car has not been started then the chief of the park will call helpers and have the car pushed out of the park. The time is counted against a car from the moment it is supposed to start or at the hour set for its departure from within the park. The time required for replenishing is counted for the total time.

No one excepting the driver of a contesting car, the chief of the park, the needed helpers, the timekeeper and the observers will be allowed to enter the park, which will be under the supervision of the chief.

The cars will be weighed, checked and sealed the day before the trials start. The principal parts of the chassis, motor, transmission will be stamped to be checked later.

Each car will carry an observer chosen by a contesting concern.

All the cars must average at least 15.5 miles per hour during every stage, otherwise they will be eliminated.

All those cars which have succeeded in maintaining the required average speed of 15.5 miles an hour and which have no mechanical stop will be classed as first.

The following will not be considered as a breakdown: Tire puncture, oiling or lubricating, cleaning spark plug, cleaning carbureter in case of obstruction, tightening screws or nuts, regulating brakes, unexpected running out of fuel or lubricants, tightening chain. It will, however, be required that the observer mark down in his book of record stops made on account of any of the foregoing causes. Any other stop, as for instance the changing of a spark plug, the breaking of a chain, replacing a screw or nut, breaking of a brake, etc., will eliminate the competing car.

Taking on water is permitted only once during each stage. A second taking of supply will be considered as a mechanical stop or breakdown.

The speed at which the cars will be driven not being taken into account except the minimum of 15.5 miles an hour, l'Auto will not make any mention of the time of arrival of a contestant or the total time.

The contestants must observe the speed regulations of the localities or country through which they drive. In case of two violations a contestant will be disqualified from the trials. In going through a town or village contestant may not pass ahead of another. At crossings and places of danger cars must slow down.

The entry fee will be $30 for one car, $56 for two cars and $80 for three cars. The fee includes insurance against fire in the park.

POPULAR WITH HUNTERS

Los Angeles, Cal., Sept. 18—Frank Oswald came into Los Angeles last week from the Soledad canyon with a deer tied on the side of his Pope-Hartford roadster. He had gone on a camping and hunting trip near Lang and brought down the buck in the hills back of that station. The car carried Oswald and two friends in addition to the guns, ammunition and a camping outfit which was tied on the running board and fender. Dick Collier secured a deer further back in the hills a couple of weeks ago. He also made the trip in his roadster. The motor car has become one of the favorite means of getting to the game country and hundreds of cars can be seen leaving Saturdays to spend the week end in the country. The hunters are enthusiastic over this method of transportation, for it is a great time-saver and time is an object with them.

Premier Agents Meet In Their Annual Session

Indianapolis, Ind., Sept. 22—One of the most unique runs that has ever left this city began today when twenty-five 1910 Premier touring cars, just out of the factory, took the agents of the Premier Motor Mfg. Co. to French Lick Springs. The run was a part of the program of entertainment for the annual meeting of the agents which started yesterday. During their visit to the factory yesterday the agents saw the cars in which they rode today completed. The cars were taken directly from the factory to the Columbia Club, from which the run started, without the chassis ever having been run for a mile. There are thirty-two of the agents, from the Atlantic to the Pacific coasts, attending the meeting, arriving early yesterday morning and being assigned to quarters at the Denison hotel. The morning was spent in visiting the factory and inspecting the 1910 models. The idea of the meeting is that the company's salesmen can learn much of the construction of the cars they sell by a visit to the factory and can gain many new arguments on the selling question, and at the same time make a valuable interchange of ideas. Last night the company gave a banquet at the Denison hotel, about sixty guests attending, including Mayor Charles A. Bookwalter. President H. O. Smith presided as toastmaster, and there were a number of short, informal talks on topics of special interest to Premier salesmen. An address of welcome was given by Mayor Bookwalter, who before he became mayor for the present term was engaged in the manufacture of motor cars. He is also an enthusiastic motorist and his short talk was well received. President Smith talked along the line of motor car development, showing incidentally the rapid growth that the Premier company has made and unfolding the future plans of the company. He brought out a number of points of special value to the agents in their daily work, points that have been gained only through years of experience in the motor car industry.

Others who talked briefly were the Premier field men—R. I. Eads, who looks after the New England states; Webb Jay, who has charge of the middle west territory, and Charles Davis, who has the territory comprising the western and Pacific coast states. Following breakfast at the Columbia Club and the taking of a photograph at the Soldiers' and Sailors' monument, the agents left at 7:45 o'clock this morning for the run to French Lick and return, President Smith and other officers of the company accompanying the party. At French Lick tonight there will be a special program of entertainment for the visitors. A short business session was held yesterday afternoon in the new salesroom of the Gibson Automobile Co. Here there were a number of talks on the Premier 1910 cars. After returning from French Lick tomorrow the agents will visit the Indianapolis motor speedway. Later they will go to the Country Club north of the city for dinner and this will be followed at night by a theater party. The Premier convention so far has been the most successful the company ever held.

GROWTH OF KISSEL PLANT

Hartford, Wis., Sept. 21—A great many changes are being made at the present time in connection with the factory of the Kissel Motor Car Co. of this city. The factory is making additions to provide adequate manufacturing space for 1910 products. One extension at the west end of the plant is 154 feet in length and four stories high. One floor of this will be used for upholstering, one section for the top department, one section to increase the size of the gear-finishing department and which will make this department, when completed, 400 feet in length. The company is just finishing a large warehouse 250 feet by 50 feet, two stories high. This is directly south of the freight depot, between the main railroad track and siding track. This leaves the company's siding between this warehouse and its loading platform, thereby enabling the shipping department to load cars from either side of the track. The warehouse is being equipped with overhead tracks, extending from the freight depot, as well as separate tracks from the warehouse to each department stock room. These overhead tracks enable the floors to handle stock with very little help. The warehouse is divided so that stock for different departments will be kept in deparement spaces, their arrangement enabling the stock keeper to have a perpetual inventory and knowing, at any time, the exact stock on hand, where it is located and the state it is in. In addition to this, the Kissel company has purchased a three-story building which will be used for building the greater number of the car bodies. With these factory additions there has been a continual installing of new machinery, such as special millers for finishing crankcases, special cylinders grinding machines, special Norton grinding machines for finishing such parts as crankshafts, pistons, piston pins, camshafts, cams, valves and other parts.

GERMANY'S NEW WAR SCHEME

Berlin, Sept. 12—An original scheme has been introduced by the German military authorities by which buyers of German-built motor cars and commercial motor vehicles will receive a grant of $1,000 apiece and a yearly subvention of $250 if they will sign an agreement to allow their vehicles to be requisitioned in time of war. The scheme is already in active operation at Stettin and should succeed in giving the German military authorities a most valuable transport service in case of war.

MATERIAL MAKERS GREAT FACTORS IN 1910

DETROIT, MICH., Sept. 20—With nearly every established motor car concern in the country preparing to greatly increase its output for the coming year and with new companies springing up on every side, it looks like a brilliant season ahead for motoring, but with all these evidences of prosperity at hand it would seem, after a swing around the factory circuit, as if the manufacturers of material have not been taken into consideration by the makers of cars in preparing plans for 1910 and that these same makers of material are going to be the most important factors of all. Can they produce enough material to satisfy the manufacturers of cars? A careful survey of the situation would seem to return a negative answer. With the country making 80,000 cars this year, it was all the parts makers could do to fill their contracts. Now the car people want to turn out 250,000 machines for 1910 and this big jump undoubtedly means a famine of raw material. The parts makers are working to their limit and it would seem as if the product of cars is going to be determined more by the amount of raw material that can be turned out rather than by the capacities of the car plants.

Glancing over the situation in general, without attempting to cover the ground in anything like a thorough manner, leads to the conclusion that the makers of cars are preparing to do their own work is so far as it is possible, and many of the parts establishments are tied up by contracts which practically means that they have been annexed to the makers of motor cars on a large scale. In Buffalo, for illustration, the Pierce-Arrow Motor Car Co. is adding to its concrete buildings to an extent which will probably allow of doubling the output. The E. R. Thomas Motor Co. is making additions to buildings such as will almost completely use up the remaining available ground, and this work is so far advanced that the Thomas output will be easily double what it was for the last year. The Sterling Engine Co. is just finishing up its last season's work, having done more marine work than ever before, and plans are maturing for a large addition to the plant, which includes a wing to the back of the main building almost, if not quite, equal in floor space to the present plant.

What is true at Buffalo is simply duplicated at Cleveland, and one of the best indications of the rate at which cars are being built, will be found in the numerous parts shops located there. The Perfection Spring Co., for instance, added on to its plant a basis of 200 per cent, and with this condition barely established, the company is confronted by the need of more room. The Peerless company has been constantly adding to its factory and will soon have completed one of the most complete in the country. The Stearns is making additions. The Baker Motor Vehicle Co. will double its output of electrics in 1910.

The McCord Mfg. Co., of Detroit, with vast resources for turning out such accessories as radiators, force-feed lubricators, fans, etc., has near to completion a new building which will enable the company to build at least 50,000 more radiators for next year than this and subject to ability to make deliveries. The company is threatened with more than this amount of business in addition to booked orders which will task the entire plant. The new disk fans, by the way, of which this company is making a specialty, are in great demand. They differ from the usual product in that the blades are made in dies, all at one time, and are mounted on a hub construction of pressed steel. This branch of the company's factory is working, like the rest, 23 hours out of every 24.

The Regal Motor Car Co., of Detroit, with 2,000 of the model 30 on the road as the effort of 1909, is spreading all over the block of ground where once the Regal occupied but a small space in a single building in the same block. Work on the Regal evolution, which is the 1910 revise of the 1909 model 30, is so far advanced that there is assurance of a big increase over the 1909 output, especially since the big new building is now housing the car assembly work, and affords space for important detail performances as well. The Regal is one of the companies which is not suffering so much from a famine of material, due to having a commodious foundry of its own. In these days, under high-pressure conditions, it is a good thing to own a foundry.

At the plant of the Ford Motor Co., foresight is represented by a yard full of chassis frames, motor cases by the half-acre, cylinders and other parts to match, rather tending to show that Henry Ford does not intend to participate in a materia famine.

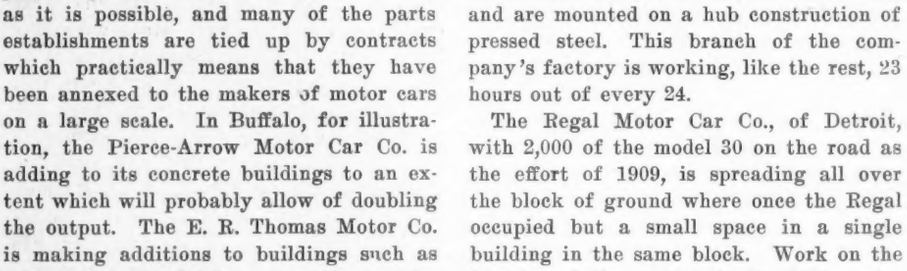
At the E-M-F plant the new building is advancing to near completion. It promises to house much additional work, yet at the same time the company is building cars all over the yard, as well as under roofs, so that the high-pressure system imposed by the management scarcely takes notice of such details as roofs and floors. The Studebaker-Flanders organization is loath to disclose its real estate plans. Mr. Flanders told the writer that newspaper statements of late were far from the truth, and, as a matter of fact, it is too early to expect anything by way of news from this source.

The Brush Runabout Co., with seven new models, is probably making as good a showing as is possible for any organization and nothing but a well-organized establishment could undertake so large a task with the hope of cleaning up the shop orders on time. The company is rapidly eating into all the spare room the Briscoe Mfg. Co. can afford to give up in view of a most extraordinary rush of business in its own line.

In the Cadillac plant everything is so standardized under the management of H. M. Leland that each day's progress is definitely decided upon at each morning's conference and the work in the shop goes on almost uneventfully. The Cadillac is one of the companies which operates its own foundry, builds its own radiators and other parts.

The Anderson Carriage Co. is pushing electrics in a way to surprise and the big new plant is busy almost to overcrowding. This company is the builder of the Detroit electric.

In Detroit there is evidence of activity on all sides and new concerns are daily being heard from. The Detroit-Dearborn Motor Co., for instance, is preparing to put out a four-cylinder model; so is the Sibley Motor Car Co., also of Detroit. The St. Clair Motor Co., of Detroit, has the same kind of announcement to make, while it is gossiped about that Keenan & Jahn, of Detroit, are soon to start building cars. The Wolverine Motor Car Co., of Detroit, is preparing a four-cylinder model, while it is stated that Purchasing Agent Bayerline and his assistant, Allen, of the Hudson Motor Co., will withdraw and make cars themselves. N. T. Brotherton is organizing a company, while the John Gillisbee Auto Sales Co. is reported to be preparing



PLANT OF NEWLY-ORGANIZED METZGER MOTOR CAR CO. AT DETROIT

to build 2,500 cars for 1910. The Kritt Motor Car Co. will have a model and the Detroit Boat Works will build a car to be known as the Tom Thumb. Jake Utz, formerly with Chalmers-Detroit, offers a model of his own design.

Building operations on a large scale are in prospect and contemplation in Detroit's manufacturing industry. The Chalmers-Detroit is just moving into a duplication of its former factory, and is building another structure; the old de Luxe factory is being virtually doubled by the Studebaker-Flanders interests and an army of men is at work on construction; the Packard Motor Car Co. has plans complete and is now erecting a material addition to its plant on East Grand boulevard; the Ford Motor Co. is expecting to occupy its new factory in Highland Park very soon, though there is still considerable construction work left to do before the immense plant can be termed complete; the Hupp Motor Co. is adding to its present facilities. On all sides the accessory and parts makers are showing similarly the result of a year's prosperity and the expectation of still further success, by the way they are starting new factories and adding to the ones that have been in operation. It is a noticeable fact that virtually all of the new factories are of three stories in height. Cement constructions seem generally favored in the choice of materials.

Under the orders of J. J. Brady, factory manager, a large amount of the Chalmers-Detroit's new equipment is being installed in the new factory addition, just east of the plant, now virtually completed. One of the features of the new building will be a dining room for employes. Most of the first floor and all of the second will be used for assembly purposes. The third floor is designed for a paint shop. The force of men formerly engaged on the construction of this building has been moved some yards eastward and is now engaged on the erection of the factory building to be used by the Fairview Motor Co., an affiliated concern which will confine its activities to the manufacture of trucks and taxicabs. All the new buildings are of concrete and steel, on a design similar to the original Chalmers-Detroit factory and harmonizing perfectly with the general surroundings.

In an effort to combine the motor car manufacturers of Detroit into some sort of organization to be used for the furthering of a plan to hold an annual fall show of cars and accessories in Detroit, Mayor Breitmeyer has held one meeting with the prominent members of the trade and expects to hold another in the very near future. There is a general sentiment among the trade to the effect that fall is the logical time for such a show, the idea being to attract buyers from all parts of the country to get their first view of the new models and to arrange many of the details of the coming year, which can be better attended to here than at the national shows in the winter. An enterprise of this nature failed this year through the lack of an organization to take hold of the arrangements. This feature Mayor Breitmeyer hopes to remedy in time to allow all details to be settled for the exhibition which is designed for 1910. In all probability the affair will be held at the state fair grounds.

Outside of Detroit it is the same story. At Jackson, Mich., the Jackson Automobile Co. is doubling the capacity of its plant and expects to make 5,000 cars. The Imperial Automobile Co. has out its demonstrators and is figuring on an output of 1,500. The Ames Dean Carriage Co. expects to make 200 motor cars in addition to its buggies, while the Fuller Buggy Works is working on a high-wheeler, it is reported. At the old Jackson plant the Lewis Spring and Axle Co. is working hard to keep up with the demand for its product.

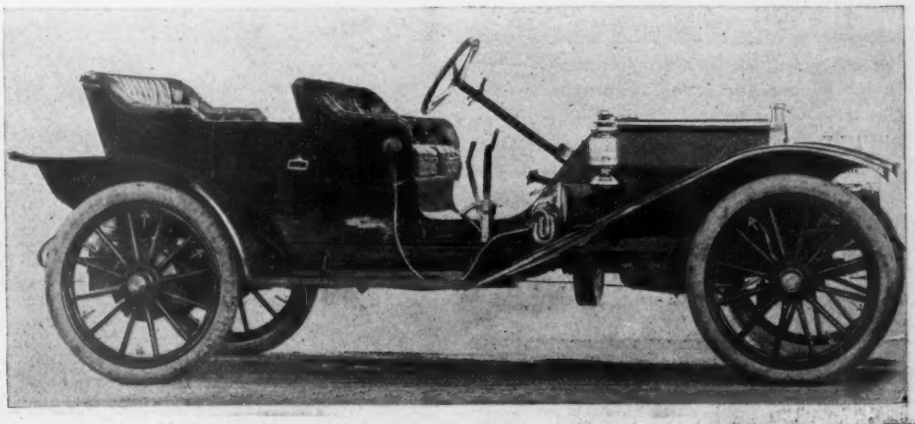
Charles Blomstrom, formerly a builder in Detroit, has settled at Adrian, Mich., where he has organized a company and is preparing to market 500 cars. Also at Adrian the Lyon Motor Car Co. has been started and it is reported that the Postal-Doherty interests of Detroit are back of it. The Smiths and Olds, formerly of the Olds Motor Works, are preparing to re-enter the trade, while Clark & Co., of Lansing, have entered the business. The Michigan Buggy Co., of Kalamazoo, is preparing to make motor cars instead of carriages, while J. I. Page, formerly connected with the Reliance Motor Truck Co., of Owosso, Mich., is building a new type of runabout with a three-cylinder two-cycle type of motor.

Metzger Motor Car Co. Organized in Detroit

Detroit, Mich., Sept. 21—Articles of incorporation were filed in Lansing yesterday by the Metzger Motor Car Co., with a capital stock of $500,000 and a capital paid in of $300,000. The stockholders and officers in this company are: Byron F. Everitt, president; William Kelly, vice-president; William E. Metzger, secretary and treasurer. This company will manufacture a new car designed by William Kelly. The new company will manufacture a runabout and a five-passenger car to be sold at a popular price. About 30 days ago the company purchased the plant of the Jacob Meier Co., trunk manufacturer, located at Milwaukee avenue and the Grand Trunk railroad. This plant is well located for the motor car business and occupies 2½ acres of ground. The plant is located between the East boulevard and the Detroit white lead works at the viaduct. Additional buildings have already been decided upon. The machinery is being installed and the company will commence delivery of its new product within 90 days. It is expected that during the year of 1910 at least 5,000 cars will be manufactured by this concern.

CHANGES ON DENVER'S ROW

Denver, Colo., Sept. 18—The extreme limits of the motor row in this city have now been set at Twelfth and Nineteenth streets on Broadway. A short time ago the Tobin Motor Car Co. secured a salesroom at 1920 Broadway, where the Peerless and the Fritchle electric will be sold. At the other end of the line, George Hannan has erected a large building where he will handle the Jackson. Hannan's place is at 1208 Broadway. This makes the row seven blocks long on Broadway, and in addition to this it spreads out on the adjoining streets in the vicinity of the state capitol. The most conspicuous change along the row so far this fall is the combination of the two big supply houses, the Consolidated Automobile Supply Co., and the Auto General Supply Co. These houses, which have been under the management of John E. Fry and J. G. McGill, respectively, have consolidated under the name of Fry & McGill, and on October 1 will occupy one-half of the lower floor of the Majestic building, at Broadway and Sixteenth streets. The new firm is incorporated with a capital stock of $100,000. C. S. Newsome, agent for the White steamer, has removed from 1460 Cleveland place to 1339 Broadway. George Hering, with the Stanley steamer, will occupy the room vacated by the Auto General Supply Co. W. M. Johnston, who has been handling the American and the Marmon, has formed a copartnership with Martin Fetcher, winner of the Cheyenne 200-mile race last month, under the name of the Johnston-Fetcher Motor Sales Co. This firm will sell the Falcar.



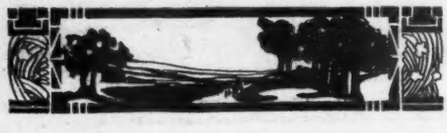
NEW MODEL WHICH METZGER MOTOR CAR CO. WILL PRODUCE

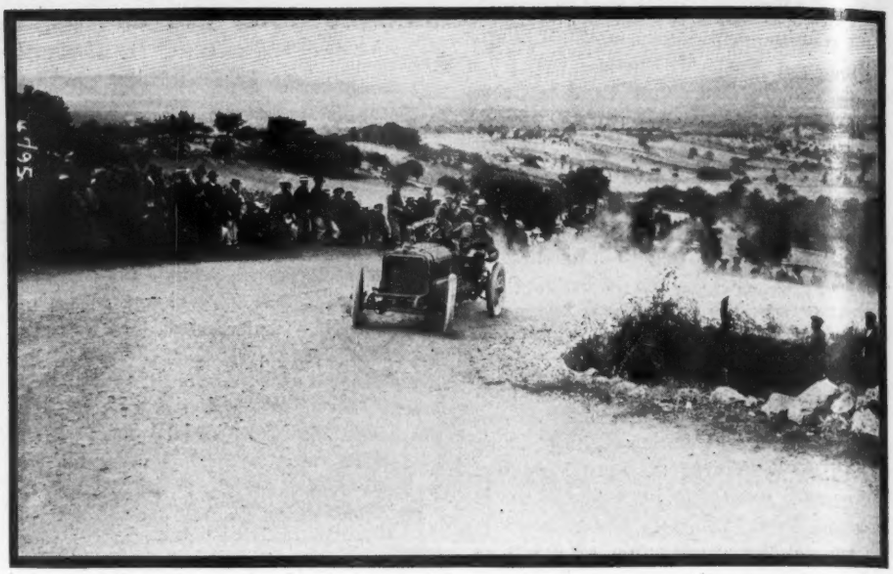
England Tells What It Thinks of American Cars

LONDON, Sept. 8—Five or 6 years ago the answer to the question "What does England think of the American car might have been tersely summed up as "Not much!" For this opinion there were a number of reasons, principal among which was the fact that the Englishman is conservative to the backbone and the design of the American car of but a few years back was generally such as was least likely to appeal to him. There was a lack of convention in the American cars that he then had access to that he did not like at all, they were un-English and professedly "American"—a term which in some circles has hardly yet lost its savor of a sneer—and he was further of the opinion that America was even behind England in the matter of motor manufacturing.

Apart from such considerations as this, which although they appear flimsy and mean to a degree, were nevertheless weighty enough, real cause for dissatisfaction was provided by the frequency of the American cars' breakdowns, their failure in competition and the difficulty of acquiring spare parts or fitting and replacing old ones. All that, however, has changed now and the imports of the American-built motor car goes on steadily increasing year by year. The biggest jump was effected by the adoption of the Mercedes type of design, which, in becoming practically universal, eliminated a large number of those unconventional features of which the English market had expressed disapproval.

The fact that the English buyer no longer cherishes a reproach for the American goods may be largely, and justly, ascribed to the excellent performances made by certain American cars during the past 4 or 5 years, during which time, although their numbers are as yet relatively small, they have shown up well in all sorts of competition against cars of all nationalities. It is perhaps invidious to mention names, but it is nevertheless not too much to say that the chief credit lies at the door of the Cadillac company, whose triumphant success in its unique and self-imposed standardization test of last year created a sensation in the motoring world. These Cadillas cars have sold in increasing numbers and bear a reputation second to none. Their silence, reliability and simplicity have rendered them peculiarly suitable for doctors' use and it is safe to say that they are, with the single exception of a certain French voiturette, quite the most popular car with the medical profession. Long usage has quite neutralized the slightly unconventional appearance of the small 10-horsepower model, while the larger powers are becoming commoner and commoner on the English highways, and there are also a considerable number of Cadillac taxicabs doing good work in the metropolis.





MOUNT VENTOUX HILL-CLIMB IN FRANCE—BABLOT IN WINNING BRAZIER

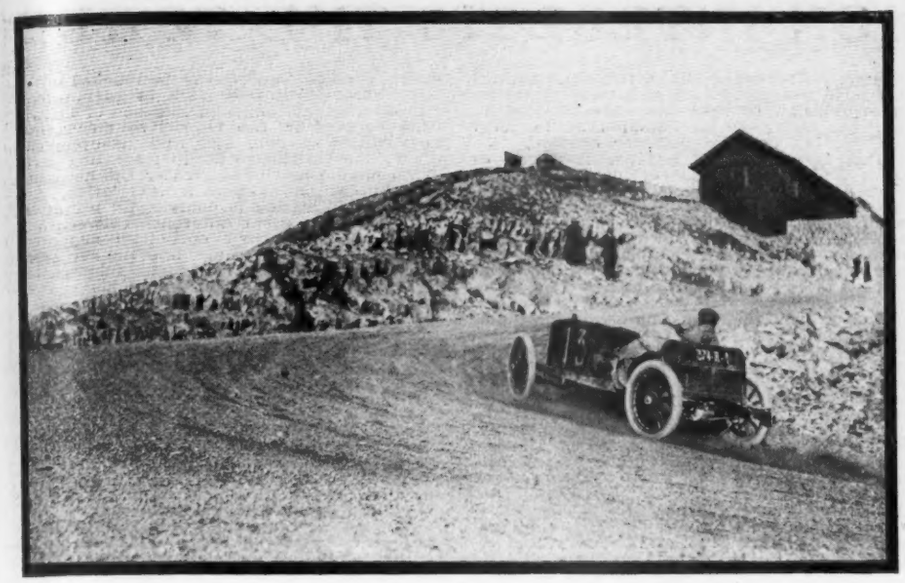
The White steamer is, of course, in point of numbers and records of reliability and fine running car far and away the most popular of any steamer in Great Britain, in fact it is practically, the Stanley and Mieuse cars excepted, the only steamer ever heard of, although there are at least eight other steam car manufacturers in the British isles.

The Stanley steamer has gained a certain amount of popularity in recent years, but for some reason never has been so popular as the White. The latter is regarded as a motor car de luxe, silent as the grave, comfortable to a fault and fast when required. The Stanley finds its market, however, chiefly with the man who has no craving for speed, but requires for a moderate outlay a quiet, reliable and foolproof car. The Stanley would certainly sell better were more publicity given to it. As a matter of fact it is entirely inadequately advertised.

The representation of the American manufacturer in Great Britain is a question which has a large influence over the sale of the goods. In this respect the Anglo-American Motor Car Co. and the White Steamer Car Co. are very far ahead of other agents for transatlantic cars. Both of these firms spend money lavishly in publicity and in giving their customers every convenience. They have fine premises and attractive show rooms, hence the volume of business they do is a large one.

The little Ford car came upon this market just at the right time, when the modest motorist was getting tired of the noisy single-cylinder car and was beginning to ask for a cheap four-cylinder machine. The Reo was one that was frequently met with on English roads and its

MOUNT VENTOUX HILL-CLIMB IN FRANCE—LINED UP FOR START



MOUNT VENTOUX HILL-CLIMB IN FRANCE—TURN NEAR TOP

reputation for reliability and hill-climbing powers stands equal with that of the Cadillac. It does not appear, however, to be so well known as formerly. The Buick cars have made a good name for themselves, but their number in England is not a large one. The Englishman expects the American machine to be cheaper than the home-made goods and the price of the Buick may therefore be held to have militated against its finding a very wide public. The selling agents have now put the Hupmobile, a four-cylinder low-priced car, in the market and with this nice, dashing, speedy little machine at such a moderate figure they should do big business. The Thomas and the Mitchell are newcomers to Great Britain and it is, as yet, early to say what the English buyer thinks of them. Time alone will tell that story.

In general and in fine it may be summed up that the American car will meet with favor and popularity in Great Britain if and when it possesses some feature which gives it an advantage over the British product. Then the White car has done well. The Cadillac and Reo have gained on the score of silence and reliability over the two-cylinder English car which was, at the time of their introduction, neither quiet nor reliable. The Ford did well because it was a cheap multi-cylinder and came at a time when such a car was badly wanted.

The American manufacturer seems to be distinctly ahead of his British rival in anticipating a public demand and catering to it, but it must not be forgotten that the latter reaches the same point later and has the advantage of his geographical position to aid him. Hence to command a ready sale in Great Britain and to maintain it, the American car must be superior in one point at least to the home article. What this country wants now is a good, cheap two-stroke car, one or two-cylinder.

MOUNT VENTOUX HILL-CLIMB IN FRANCE—CARS COMING DOWN

Proposed English Law Does Away With Speed Limit

LONDON, Sept. 6—Under the title "Development and Road Improvement Bill" a measure of tremendous importance was introduced into the house of commons as an appendage to the finance bill. This measure, as can be ascertained from the following brief resumé of its principal head, constitutes a parliamentary authority for the construction of special motor roads in Great Britain. The special road board is to be composed of a paid committee with power to obtain land without license in a similar way to that granted by special acts to railway companies. The board is to have power to construct and maintain new roads or to make advances to highway authorities towards the improvement of existing roads or the construction of new ones. New roads so constructed may be carried over or under existing roads by bridges, tunnels, etc. The new roads will be administered by the local government board in a similar way to ordinary existing roads with this important difference—that motor cars running on the new roads will be subject to no limit of speed. The road board is to have power to acquire all land lying within 220 yards on either side of the center of the new roads. The increment in value of this land due to the new road passing through it will be applied to the road improvement fund, upon which the board will draw at its discretion. Provisions are made for application to Scotland and Ireland. Land will be purchased out of the fund allocated by government, and this fund will be maintained by taxation on gasoline and by revenue from motor licenses. New roads will be preferably constructed where main arteries are congested and with a view to alleviating local unemployment, which is one of the questions of the hour.

On the basis that once motor roads are constructed, motors will be likely to be excluded from ordinary roads, and that no motor roads are required, considerable opposition is being made to the bill, and it is, of course, actively opposed by railway companies, which would be likely to suffer badly in competition with unlimitable fast motor traffic. On the other hand, it is felt by the majority of reasonable motorists that motor roads would prove a great boon, while the fact that the road board would also apply its activity in cutting off corners, removing high bridges, widening, tarring and generally improving the existing main roads, which badly need it, has met with unanimous and unqualified approval. The proposed bill is being given careful consideration on all sides.

SELDEN DECISION INTERESTS THE TRADE

NEW YORK, Sept. 22—Since the handing down of the decision in the Selden case last Wednesday by Judge C. M. Hough of the United States circuit court of southern New York there has been great interest displayed in it by the trade at large, but so far neither side has issued any official statement in the matter. Whether or not any announcement will be made either by the A. L. A. M. or the A. M. C. M. A. has not been disclosed. It is presumed though that the case will be carried to a higher court, although the lawyers have not given out any plan of action. According to one barrister not connected with either side, the procedure, should such a line of action be decided upon, would be for the complainants to petition for an injunction restraining the defendants from continuing to infringe the Selden patent. Then it is up to the discretion of the court to either enforce the injunction, if it is granted, or suspend it pending an appeal to the United States circuit court of appeals The court also can exercise its discretion as to whether or not bonds will be required of the defendants. It is stated that an early decision could be had from the court of appeals—probably by next spring —and after that there is the United States supreme court. If the decision is upheld the next step is to fix the damage. It is thought that no action will be taken which will in any way affect the private owners of cars.

Below is given excerpts from Judge Hough's decision:

The application for the patent on which these actions are based was filed in 1879—or more than 16 years before the grant was made. The principal claim in suit No. 1 reads thus:

"The combination with a road locomotive, provided with suitable running gear, including a propelling wheel and steering mechanism, of a liquid hydrocarbon gas-engine of the compression type, comprising one or more power cylinders, a suitable liquid fuel receptacle, a power shaft connected with and arranged to run faster than the propelling wheel, an intermediate clutch or disconnecting device and a suitable carriage body adapted to the conveyance of persons or goods, substantially as described."

The second claim varies from the first only in requiring the "suitable carriage body" to be "located above the engine" while the fifth claim sets forth substantially the same combination, but specifically describes the engine as comprising a plurality of cylinders with "pistons arranged to act in succession during the rotation of the power shaft."

These three claims are alleged to be infringed by all the defendants.

This statement of complainants' position seems sufficient to show that the subject-matter of these suits is the modern gasoline motor car. The defendants are severally the manufacturer, seller and user of the Ford machine, a well-known American make, and the maker and importer of the Panhard, a celebrated and typical French product. If these defendants infringe it is because complainants own a patent so fundamental and far-reaching as to cover every modern car driven by any form of petroleum vapor, and as yet commercially successful.

Such a claim lends interest even to such a record as is here submitted, and requires careful examination, to the end that the parade of forces in this court may at least serve to shorten and simplify the certain conflict in the appellate tribunals. See Note 1.

Upon one queston of law all counsel are agreed; the patent claims under consideration, are all for combinations; there is, of course, no agreement that the combinations set forth are patentable, and none as to the interpretation of their language if valid at all, but there is no denial that in form nothing but combinations are claimed.

This is emphasized because it seems to open and simplify the discussion. Selden does not pretend to have invented any new machine or combination of matter in the same sense that Whitney invented the cotton gin or Howe the sewing machine. He does not in application or claim specify any one mechanical device for which in some branch of art a prototype cannot be found; there had been and were in 1879 running gears, propelling wheels, steering mechanisms, gas engines, etc., of many forms, and his patent covers no one form of any of these parts of his road-locomotive. He does assert that he selected, adapted, modified, coordinated and organized the enumerated parts—including the usual mechanical adjuncts of each part—into a harmonious whole, capable of results never before achieved, and of an importance best measured by the asserted fact, that after 30 years no gasoline motor car has been produced that does not depend for success on a selection and organization of parts, identical with or equivalent to that made by him in 1879.

If this be true, it may be held at once that in such a mental operation and such an important result therefrom, invention, and that of a high order, undoubtedly does reside. Where Bradley J. declined definition, he would be a bold man who tried it, but I am sure that invention is easily discernible as that which vitalizes Selden's selection, if that selection and its results have been truly described.

Broadly speaking, the defense in these cases rests on a denial of the truth of the foregoing summary of Selden's performance; which denial has two parts: 1—Selden did not do what he now asserts and—2—defendants' combinations differ from Selden's, being neither identical nor equivalent.

In considering what Selden did, and the meaning of the words in which he described and claimed his achievement, it is to be remembered that whether his combination constitutes invention and whether it possesses novelty and utility are primarily questions of fact, as to which the very grant of the patent raises a presumption in favor of complainants, while the demurrer decision —in Electric Vehicle Co. v. Winton Motor Co., 104 F. R. 814—is here controlling authority to the effect that on its face, plus all matters of which the court can take judicial cognizance, the patent is valid.

To ascertain therefore how far defendants have succeeded in meeting the burden of proof, which in all matters of fact lies on them, it seems fair to begin by discovering from all the evidence what was the state of the art when Selden filed his application in 1879. See Note 2. * * *

If I have correctly apprehended it, there was clearly room for a pioneer patent, and it must now be held that on its face and in view of the art, Selden's is such a patent. This means that Selden is entitled to a broad range of equivalents, and this rule as applied here results in this crucial inquiry: Was Selden—or any one else—entitled in 1879 to appropriate as one of the elements of any patentable combination a liquid hydrocarbon gas engine of the compression type?

I think he was, and so was any other inventor, but he was the first to do so. If this be true, then the use or disuse of any then well known mechanical appliance which will increase the efficiency, usefulness or commercial success of such combination, without changing what defendants call its co-operative law—see Note 3—is on the one hand open to Selden, and on the other will not free defendants from infringement.

Although there were in 1879 many liquid hydro-carbon gas engines of the compression type, there was not one which in its then form could be made an element—and the most important element—in a road wagon combination, and the radical difficulty was the same that Savalle had confessed to 10 years before.

Selden—on paper certainly, whether actually will be considered later—solved that difficulty, and such solution gave him the right to claim broadly the thing which was the leading element in his invention—when used in his combination. Thirty years have passed, and counsel admit that no successful gasoline motor car fails to use a liquid hydro-carbon gas engine—of the compression type—with a short rapid stroke, and enclosed crank case, and a plurality of cylinders.

These are the very things which are at the foundation of success. To be sure—as will be considered more fully later—no very great degree of success can be reached without improvement over 1879 in carbureters, and electric ignition, and increase of knowledge concerning the respective mechanical possibilities of two, four and six-cycle engines; the faster also the reciprocating parts of an engine move the greater the necessity of constant and abundant lubrication, and Seldens' lubrication is confessedly primitive, and finally the great difference between any results Selden's most optimistic supporter can claim for him in 1879, and the successes of 1909, arises from increased compression, so that engine weight per brake horsepower has now been reduced to about 10 pounds.

But these are non-essential; if in 1879, Selden could lawfully use as an element in his patentable combination, the "compression type," or species of a whole genus of engines. As already stated, I think he could, and did, and further showed and made an exemplar of said type. See Note 4.

Thus far the claims and specifications have been treated as though they were presented to the commissioner in 1879, in the shape they left his office in 1895. This was not the case; nothing remained in '95 of the language of '79 but the description of the vehicle and engine, and not all of that; the claims were reworded and the specification amplified many times, and usually after a rejection made or criticism offered by the examiner, Selden did nothing by way of amendment or reply for about 2 years—the extreme limit of inactivity permitted him by these rules of patent office practice.

By these means he received in 1895 a patent for an invention of 1879, and in the meantime had never built a motor car, and never succeeded in getting any one sufficiently interested in his theories to experimentally try them out with larger means and better mechanical ideas than Selden himself had.

During the later years of this period, and while Selden was in very leisurely fashion combating examiners who evidently had small conception of what was meant by light self-propelling vehicles usable on the common roads, Duryea, Olds, Ford and others in America, the Panhard and Peugeot companies and many others in France were experimenting with actual cars, and in 1894 a public race-meet was held in France, whereat cars now as archaic in appearance as Selden's, demonstrated that they actually could propel themselves from Paris to Rouen at about 12 miles an hour. The engines of some of them were modified Ottos, and "liquid hydro-carbon gas engines of the compression type," and it must be found that when Selden's patent issued there had been developed engines answering to his phrase, which as matter of history are not derived from his engine—that others reached his type without knowledge of him or his labors; indeed, while certainty is impossible, it is my belief from this evidence that Selden has contributed little to motor car advancement in the United States, and nothing at all abroad. As matter of fact, I believe that nearly all the cars made in the United States when these actions began, were modeled on French ideas; and used engines descended from Otto through Daimler, and not from Brayton through Selden or any other American. In short, this American patent represents to me a great idea, conceived in 1879, which lay absolutely fallow until 1895, was until then concealed in a file wrapper, and is now demanding tribute from later independent inventors—for the most part foreign—who more promptly and far more successfully reduced their ideas to practice.

But the patent speaks from the date of its issue, and unless Selden did something unlawful during his 16 years wrangle with examiners, or unless intervening American rights, available to defendants, sprang up while Selden was rewording claims—he is within the law, and his rights are the same as those of the promptest applicant.

Without prolonging discussion, it may be held briefly that Selden did not overstep the law. He did delay, he was not in a hurry. He could not get any one to back him, and doubtless appreciated that if he was ahead of the times, it was wise not to let his patent get ahead too. If he had gotten his grant in 1880, without a monied backer—the patent might and probably would have expired or nearly so before any one saw its possibilities; and if the business world had seen them within 17 years, that term would then so nearly have expired, that Selden would never have been able to get to final hearing before it ran out. At best, an accounting and not an injunction would have been his lot. The difference he may well have considered as a lawyer, and personally I believe he did think of it. If he did not delay unlawfully, what intervening rights did he permit to spring up?

Remembering that Selden clearly showed a "liquid hydro-carbon gas engine of the compression type" in 1879, and actually manufactured one, I think it clear that his original claim was wider than any of those in suit.

The third claim as originally filed read thus:

"The combination in a road locomotive provided with suitable running gear and steering mechanism, of a gas engine, traction wheels, and an intermediate clutch or disengaging device, substantially as set forth."

It is true that throughout the original papers, he speaks continually of "Gas Engine L," that being the alphabetical designation given his motor in the drawing submitted, but the claim quoted shows how wide was his original demand, and without further elaboration I hold with complainants that all subsequent changes of claim are in diminution or contraction of this first statement of invention.

The file wrapper, cross examination thereon, and argument concerning it form a bulky volume, but it seems to me sufficient to quote from the amendment of June 6, 1889, when Selden amplified his specification by inserting the following:

"I have succeeded in overcoming these difficulties by the construction of a road-locomotive propelled by a liquid-hydro-carbon engine of the compression type, of a design which permits it to be operated in connection with the running-gear, so that the full carrying capacity of the body of the vehicle can be utilized for the transport of persons or goods, and which, by dispensing with skilled attendance and with steam-boilers, water, water-tanks, coal, and coal-bunkers, very largely reduce the weight of the machine in proportion to the power produced and enables me, while employing the most condensed form of fuel, to produce a power road-wagon which differs but little in appearance from and is not materially heavier than the carriage in common use, is capable of being managed by persons of ordinary skill at a minimum of trouble and expense, and which possesses sufficient power to overcome any usual inclination."

And at the same time he put what is now claim 1 into substantially its present shape.

The language last quoted is in the final specification, it describes the thing which Selden conceived and pictured in 1879; and in 1889, the man skilled in the art though he knew more than he did in 1879, did not know as much as Selden sets forth in the quoted words. It was still possible for the gasoline compression engine, to be made part of a patentable road wagon combination. No one in the United States had passed, or even caught up with Selden—while foreign efforts have been fairly and attractively told by Mr. Krebs of the Panhard company. He quite fully depicts the history of meritorious and successful efforts in road locomotion apparently as ingenious as Selden's, and more vigorously pursued, but they did not begin until after 1879, and in 1889 were still clearly behind Selden's concept. See Note 5.

Defendants have advanced many other arguments based on the contents of the file wrapper.

Thus the original third claim above set forth, declares a combination in a road locomotive, while the first claim in suit covers a combination with a road locomotive. The change is declared to be an abandonment of the original combination. It is further shown that some patent examiner rejected certain claims, referring to the Pinkus patent—supra—and thereupon Selden amended the claims and disavowed and disclaimed Pinkus. The argument based on this is that since Pinkus' co-operative law is the same as Selden's, the disclaimer of Pinkus was in effect an abandonment of the very combination now relied on.

I have already indicated my view of the major premise of the last proposition, but these arguments and many others of the same ilk, cannot prevail if it be true that Selden clearly showed in 1879 the thing he had invented. If so, he could rewrite the description of that thing as many times as the rules of practice permitted down to 1895. That such rewriting is all Selden did I believe to be true.

Defendants now urge that Selden's invention is inoperative. The one-cylinder engine built by Selden on the three-cylinder casting in 1877-8 was put in evidence as exhibit 47. Thereafter the cylinders of exhibit 47 were all bored out or rebored, new working parts fitted to them, and the engine put into a vehicle, the whole called exhibit 89, completed in the winter of 1905-6, and constituting the first physical embodiment of Selden's patent. The complainant licensee Electric Vehicle Co. also constructed a new engine from the patent drawings—exhibit 132—and a complete vehicle—exhibit 157.

Defendants aver that neither of these vehicles is a Chinese reproduction of Selden's drawings, and have devoted volumes of print to recording and arguing about the performances of exhibit 89.

In my opinion exhibit 89 as constructed was such Chinese reproduction, exhibit 157 was not—complainants having changed the water-cooling device, used only electric ignition and made some other departures from the mechanical details shown in the drawings. But these variations were—as previously indicated—within the range of equivalents permitted to a primary patent. See Note 6.

The evidence on the subject of operativeness is the most flagrant example of unsupervised testifying I have ever seen or heard of.

Whether in 1905 exhibit 47 was any better than scrap, whether exhibit 89 would start on flame ignition, whether exhibit 132 showed diagrams revealing volume or pressure constant, were perhaps interesting, but unimportant questions. They raised a false issue over which months of time and volumes of print have been expended.

The serious and I think only question was and is whether a machine made in substantial conformity to drawings and specifications, without going beyond the range of equivalents permitted, was operative, even though rudimentary. Exhibit 157 answers to this description, and its performances may I think be thus summarized—it is a wretchedly poor car for 1905, there were probably as good, if not better cars in 1895, but it is a marvel of invention for 1879—and that is more than enough for the purposes of these cases.

One instance of alleged prior use remains. Before 1879 Brayton undertook to furnish an engine which would drive an omnibus to certain men in Pittsburg. It is shown that he endeavored to adapt his then well-known engine to traction purposes. That he failed utterly is clearly proved; the reasons for his failure are not so clear, but the failure is enough to invalidate the defence.

No litigation closely resembling these cases has been shown to the court, and no instance is known to me of an idea being buried in the patent office until the world caught up to and passed it, and then embodied in a patent only useful for tribute.

But patents are granted for inventions, the inventor may use his discovery, or he may not, but no one else can use it for 17 years. That 17 years begins whenever the United States so decrees by its patent grant. That the applicant for patent rights acquiesces in delay, or even desires delay, is immaterial to the courts so long as the statute law is not violated. On these principles complainants are entitled to a decree. See Note 7.

The Panhard machine does not in my judgment infringe the second claim. Construed as they have been in this opinion, infringement of claims 1, 2 and 5 by the Ford machine, and of 1 and 5 by the Panhard can hardly be said to be denied. It is so found, and decrees will pass accordingly.

Notes Made on Decision By Judge Hough

Note 1—It is a duty not to let pass this opportunity of protesting against the methods of taking and printing testimony in equity, current in this circuit—and probably others—excused if not justified by the rules of the supreme court, especially to be found in patent causes, and flagrantly exemplified in this litigation. As long as the bar prefers to adduce evidence by written deposition, rather than viva voce before an authoritative judicial officer, I fear that the antiquated rules will remain unchanged, and expensive prolixity remain the best known characteristic of equity.

But reforms sometimes begin with the contemplation of horrible examples, and it is therefore noted, that the records in these cases, as printed, bound and submitted, comprise thirty-six large octavo volumes, of which more than one-half contain only repeated matter, i. e., identical depositions with changed captions, and exhibits offered in more than one case.

In reading the testimony of one side in one set of cases, there were counted over a hundred printed pages recording squabbles—not unaccompanied with apparent personal rancor—concerning adjournments—and after arriving at this number it seemed unnecessary to count further. In many parts of the record, there are not five consecutive pages of testimony to be found, without encountering objections stated at outrageous length—which may serve to annoy and disconcert the witness, but are not of enough vitality to merit discussion in 2,000 pages of briefs. Naturally, tempers give way under such ill-arranged procedure, and this record contains language, uncalled for and unjustifiable, from the retort discourteous to the lie direct. (E. G. Ford, C. R. pp. 2873, 2967-8; 2987-8.) And all this lumbers up the court record room, while clients pay for it!

Even when evidence in equity was taken by written answers to carefully drawn interrogatories, the practice was not marked by economy or celerity; but stenography and typewriting, the phonograph and linotype, have become common since our rules were framed, have made compression and brevity old-fashioned, increased expense, and often swamped bench and bar alike by the quantity rather than the quality of the material offered for consideration.

Motions to expunge and limit cross-examination should have been made in these cases—though they are feeble remedies exposing counsel to personal reproach, and rendering judges afraid of keeping out of evidence what they cannot—on motion at all events—understand. But the radical difficulty of which this case is a striking—though not singular—example will remain as long as testimoney is taken without any authoritative judicial officer present, and responsible for the maintenance of discipline, and the reception or exclusion of testimony.

Note 2—From uncontradicted testimony 1877 might well be fixed as the date of the invention alleged in this patent application. No anticipation or prior use, however, has been urged during 1877-9—the experts have throughout spoken of the art of 1879 as controlling, and that time is therefore taken as a convenient starting point.

Note 3—As quite possibly my foregoing efforts to follow defendants' argument on the interpretation of the specification and claims in the combined light of prior and present art—have failed of complete success, the following statement may be excused. Defendants seem continually to assume—without saying so—that Selden invented nothing more than a modified Brayton engine, and then assert that they do not infringe because they do not use that particular motor, and do use a modified Otto. They admit that the claim is for a combination, but continually seek refuge in defenses that would be good against any patent on Selden's engine, but are worthless against the combination if it be patentable at all. Mr. Selden is a member of the bar, especially devoted to patent causes, he seems to have been his own solicitor during most of his contests with examiners over this application, and the clearly and simply worded claims in suit are good professional work. He has avoided the trap into which Morse fell—O'Reilly vs. Morse, 15 How., 62—and thereby lost most of the fruits of his efforts. This case seems to me suggestive, in that the chief justice several times speaks of process as legally synonymous with combination, and see Morse's claim restated so as to avoid the criticism that destroyed it in 19 Harv. Law Review, p. 37. I think Selden might have patented his engine as an improvement on Brayton, but he would have had to pay Brayton a royalty, and these suits would certainly never have been possible.

Note 4—This phrase which runs through all defendants' argument, seems to be defined—main brief, p. 157—as "a new mode of operation," referring to Rapp v. Central, etc., Co., 158 F. R. 440. It is insisted that Selden's combination introduced no new "co-operative law" and must therefore fail. The trouble with this argument is that there never was such a combination as Selden's before 1879, and there is nothing to compare it with but paper projects and admitted failures.

The same phrase is repeatedly used, when quoting Ex parte Faure 52 Of. Gaz. 772. If Selden had merely utilized Brayton's existing engine to drive a wagon, the doctrine of the case cited might have applied. Perhaps it would have been good American law against Rosenwald, but if Selden selected, adapted and united old elements to produce a new result, the phrase is inapplicable.

Note 5—It is not intended to admit or assert by this, that even if some one had between 1879 and 1889 devised an engine or a combination, which if devised in 1869 would have been a clear anticipation of Selden, that such person's device would be a defense on these suits. The fact that no such device exists renders discussion of this point unnecessary. Benz has not been overlooked but is not thought to require further mention.

Note 6—Great complaint is made of the "destruction" of Exhibit 47, and after defendants learned of the construction of Exhibit 89, they frequently demanded that Exhibit 47 be produced, knowing that it could not be done. I can see no force in the complaint; the function of an exhibit is to furnish evidential information, and it is too obvious for argument that whatever value—it is not much—Exhibit 47 has, it was enhanced by building even the re-bored cylinders into Exhibit 89. It may also be noted here that in my opinion Selden's original drawings indicate the existence of a check—or wicket-valve in the appropriate place. It was a well known and perfectly simple mechanical adjunct, it should have been there, it was by no means the key of the invention, and Rebass' testimony is probable and uncontradicted.

The so-called Ford-Lenoir machine has received attention. To me it is interesting but irrelevant. Mr. Clerk did intimate that he doubted whether any vehicle with a non-compression engine could move at all. Mr. Ford has shown that he was mistaken. By making the engine four times the size of Ford's compression type, there is obtained about one-seventh of the power. It hardly seems that the pleasure of contradicting Clerk was worth so much trouble.

Note 7—The legal principles relied on are so simple—the difficulty being only with the opinion evidence—that it has not seemed necessary to quote from decisions. The leading cases considered are—as to nature and act of invention—Smith v. Dental Vulcanite Co., 93 U. S., 486; Loom Co. v. Higgins, 105 U. S., 580; Potts v. Creager, 155 U. S., 597—as to probative value of references; Seymour v. Osborn, 11 Wall, 516—as to meaning of "pioneer" patent, and effect of file-wrapper; Hobbs v. Beach, 180 U. S., 383—effect of delay in patent office; U. S. v. Bell Telephone Co., 167 U. S., 224—right to deny use to others while patentee not using; the Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U. S., 424.

The Readers' Clearing House

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

EXHAUST FOR INFLATION

CAMBRIDGE, ILL.—Editor Motor Age—Through the Readers' Clearing House will Motor Age inform me if the compressed exhaust gas from a gasoline engine is harmful in any manner to use for inflating pneumatic tires?—P. A. Johnson.

Motor Age does not recommend the use of exhaust gas for this purpose, as it is harmful. The injury to a tire by using exhaust gases is due to the oil and gasoline residue which may be in the gases, which is quite often the case where combustion is not complete. Both oil and gasoline are destructive to tires.

CHICAGO-INDIANAPOLIS ROUTE

Union Grove, Wis.—Editor Motor Age—Will Motor Age kindly give me the best short route, Chicago to Indianapolis, and how to get out of Chicago? In Motor Age of August 12th Mr. Wetherbee was answered via South Bend. Is there not a shorter way and on good roads?—O. P. Graham.

A satisfactory route from Chicago to Indianapolis was followed by a party of Chicagoans going to the opening meet at the Indianapolis speedway. It was as follows: Chicago to Hammond, Ind., 21 miles; to Crown Point, 44; to Lowell, 56; to Thayer, 62; to Virgie, 76; Aix, 82, Rensselaer, 89; Collegeville, 91; Remington, 101; Wolcott, 107; Montmorenci, 128; Lafayette, 135; Dayton, 143; Mulberry, 149; Jefferson, 157; Frankfort, 161; Kirklin, 171; Indianapolis, 202.

AIR-COOLED TWO-CYCLE MOTORS

Lexington, Ky.—Editor Motor Age—Through the Readers' Clearing House will Motor Age inform me if air-cooled two-cycle motors are a success and if so why are none made? How is the actual horsepower of a two-cycle motor figured? Has friction drive proven a success and what arrangement is best? I am designing a machine and desire to make it as simple, light and powerful as possible—J. R. McConnell.

The reason air-cooled two-cycle engines have not been used has been owing to the difficulty of cooling. You will realize that in a two-cycle engine there are twice as many explosions as in a four-cycle, and of course the cooling problem is increased twofold. The power of a two-cycle motor is figured the same as that of a four-cycle, excepting that it is double. The formula for horsepower in a four-cyle is $\frac{D^2 \times N}{2.5}$ D is the diameter of the cylinders in inches, N the number of cylinders, and 2.5 a constant. Friction drive has proven a success, which is corroborated by the fact that several thousand friction-driven vehicles of the pleasure and commercial type are in use, half a dozen firms building vehicles of this type. The friction system that gives good results is where a friction disk is carried on a continuation of the crankshaft, and bearing upon this is a friction wheel slidably mounted on a transverse shaft. On the ends of this transverse shaft are sprockets for driving to the rear wheels. Preference is now given to sliding the friction disks backward to contact with the friction wheel on the cross shaft rather than rocking the cross shaft forward against the face of the friction disk. Sliding of the disk backwards calls for the intervention between the flywheel of the motor and the friction disk of some form of sliding joint, various types of which are in use by the exponents of friction transmissions.

TOWING METHODS

Lost Cabin, Wyo.—Editor Motor Age—In all books of instructions on the running of motor cars, the most important one seems to be left out. That is, how to fasten a team to a machine to pull it out of a mud hole in the manner which will be the less likely to strain the machine. To fasten the machine to the front axle is the easiest, but whether the machine is strong enough to stand the strain is a point upon which I am in doubt. In a series of eight batteries the ampere meter will show a reading of 14 amperes in a straight connection between the positive battery on the No. 1 cell and the negative on the No. 8. With the same set of batteries the ampere meter, being placed so as to connect the switch with the spark lever, only shows a reading of 5 amperes. Will Motor Age inform me if the current should lose 9 amperes in traversing a distance of not over 8 feet.—Reader.

Just what is the best method of attaching a team to a machine depends largely upon the existing conditions and the design of the machine. For instance: If both the right wheels only are deep in the mud the rope should be attached to the horn of the side member of the frame on the right side of the car, and vice versa. If all four wheels are in badly, it would be practicable to place a bar of iron or wood across the front of the car just in back and under the ends of the horns, or front ends of the side members of the frame, between the springs and the frame and attach the rope to this. The above suggestions are not only more simple than fastening to the axle but more practical as well, for by attaching to the front axle, after having overcome the resistance of the wheels attached directly to it, the strain necessary to overcome the inertia of the rest of the car and the tractive resistance of the other wheels, would all devolve upon the top leaves of the front springs with possible dire results. The loss in amperage is quite possible owing to the fact that there are numerous connections between the spark lever and the poles of the battery, at each of which there are minute spaces across which the current has to jump, and the greater the total amount of space through which the current has to jump, the greater the resistance and the greater the reduction of the amperage.

ROAD RIGHTS DEFINED

Camp Point, Ill.—Editor Motor Age—Will Motor Age please inform me through Readers' Clearing House of the Illinois law regarding road rights of a motor car or vehicle coming up behind another vehicle. Does the vehicle ahead, going slower than one wishes to go, have to give any of the beaten track, the same as when meeting? Have understood not except when not room to pass. On which side should one pass?—A. E. Gay.

In recent court decisions the rule of the road has been defined as follows: When a motor car or other vehicle comes behind a slower vehicle the leading vehicle is not compelled to in any wise endanger itself by driving into a ditch if the road is too narrow to let the other vehicle ahead. It is recognized law that the leading vehicle must go to the right side of the road, the overtaking vehicle keeping on the left. Where there is good road width the law would be upheld in court the same as the law that approaching vehicles must take their respective sides of the road.

CLEARANCE VARIES

Cleveland, O.—Editor Motor Age—Through the Readers' Clearing House will Motor Age inform me what the clearance should be between the top of the piston and cylinder head. What horsepower should a 4 by 4 valve-in-the-head stationary gasoline engine develop, and what should be the size of the crankshaft?—R. A. Nichols.

The amount of clearance between the cylinder and the piston varies according to the design of the motor. For instance: In a valve-in-the-head motor with a 4-inch stroke, if the clearance was 1-inch, considering a charge of gas to be at atmospheric pressure of say 14.7 pounds to the square inch, then when this charge is compressed into one-fifth the space the compression will amount to 5x14.7 pounds, or 73.5 pounds. If a higher

compression is desired the compression space must be reduced, and vice versa. The horsepower of a one-cylinder stationary gasoline engine may be approximated by means of the following formula: $\frac{D^2 \times S \times N}{18000}$ = horsepower, letting D equal the diameter of the cylinder and S the stroke, in inches, and N the number of revolutions per minute. With a 4 by 4 motor, then, at 500 revolutions per minute the horsepower would be 1 2/9. The diameter of the crankshaft for a motor of this type should be about 1¼ inches.

KEROSENE IN GASOLINE TANK

Baltimore, Md.—Editor Motor Age—Has Motor Age ever heard of kerosene being placed in the gasoline tank in proportion of 1 quart of the former to 75 gallons of the latter as a preventive for carbon? I have heard of one chauffeur who claims to use this much kerosene every time the tank is filled.—J. L. Whitehurst.

Unless it is possible to adjust the carbureter so that a proper gaseous mixture may be obtained from a mixture of this kind the results would be to the contrary of those desired, and a greater accumulation of carbon take place. But with a carbureter capable of efficiently using a mixture of this kind it seems that beneficial results should be obtained, especially in traveling upon roads where many hills are encountered, so that the cylinders may be flushed out with the mixture when descending the hills by cutting out the ignition and opening wide the throttle. Motor Age is advised that in some cases where a decarbonizer has been used the results have been quite successful. In the issue of October 1, 1908, is printed an article of some length by Palmer J. Kress, M. D., Allentown, Pa., in which he states that after numerous tests with various proportions of a decarbonizing solution mixed with the lubricating oil used in his motor he got very good results by mixing ¾-ounce of the decarbonizing agent in solution with a gallon of the lubricating oil used throughout the motor.

APPLE ELECTRIC SYSTEM

Mechanicsburg, O.—Editor Motor Age—I would be greatly pleased if Motor Age, through the Readers' Clearing House, would give a diagrammatic illustration and explanation of the Apple dynamo and switchboard. Is it a machine that will give steady service and maintain full 6 volts in the battery? How many lights of 6 candlepower each could be used besides igniting a four-cylinder motor?—Earl Guy.

In Fig. 1 is shown a wiring diagram of what is now known as the Aplco dynamo floating storage battery ignition and lighting system. The current generated in the dynamo D may be regulated to flow at the rate of from 2 to 6 amperes, and the storage battery B, being connected on the line at all times as it is, acts as a reservoir, storing up all current generated in excess of the amount required, and giving it off again when the demand is excessive, or when the motor is running at too low a speed to generate a required amount of current, or not running at all. Any extra demand, however, must be in accordance with the capacity of the storage battery, and the ampere-hours put into it by the dynamo. Thus, if the ignition consumes one ampere from a 6-volt battery and the dynamo is adjusted to charge 5 amperes, then 4 amperes would pass into the battery; at this rate in 12 hours the battery would accumlate approximately 48 ampere-hours available for lighting, etc. The automatic cut-out A accomplishes two very important results: 1—It makes connection with the storage battery the instant the dynamo's voltage reaches a certain value, thus charging the storage battery. 2—It severs the connection between the dynamo and the battery the instant the dynamo drops below a certain speed or stops, thus prevening the discharge of the storage battery back through the dynamo, which, if not prevented, would injure the dynamo and exhaust the battery. When properly installed this system has been known to give very satisfactory service. It is the claim of the Apple company that when its 6-volt 6-candlepower lamps are used the accumulated current of 48 ampere-hours would operate eight of them approximately 5 hours or 16 for 2½ hours, etc. Just how many lights could be used besides the current necessary for ignition would depend upon the adjustment of the current output of the dynamo and the capacity of the battery. The instant the dynamo fails to deliver the current required, as when the speed drops too low the battery automatically supplies it, and besides giving a constant current will meet a larger demand at times than the dynamo is adjusted to give. In order to use a storage battery as in this system it is necessary to have a reliable means of seeing what the system is doing; and it must be possible to vary the charging rate of the dynamo while it is running in order to meet the varying current consumption of different engines with their different equipments. This is accomplished through the volt-ammeter V.

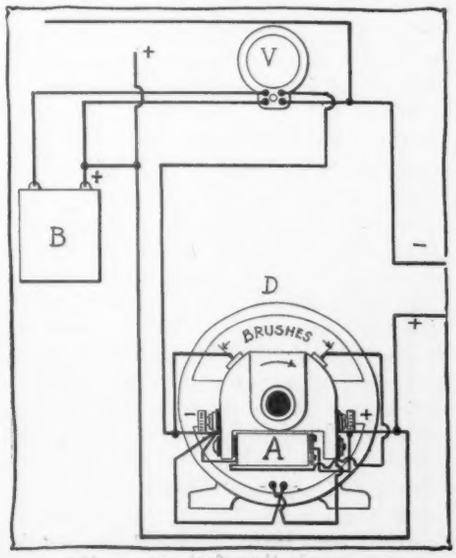


FIG. 1

PIERCE CHAUFFEUR SCHOOL

Carbondale, Pa.—Editor Motor Age—Through the Readers' Clearing House will Motor Age answer the following?: I am under the impression that the Pierce Arrow Motor Car Co., of Buffalo, N. Y., has a chauffeurs' school. What are the qualifications necessary to enter?—An Owner.

All the requirements necessary to enter the chauffeurs' school at the Pierce-Arrow factory is a fair knowledge of the English language. A special class is provided for owners of Pierce-Arrow cars. A communication addressed to R. O. Patton at the Pierce factory will enable you to learn all details in regard to the classes and necessary qualifications.

LUBRICATING PROBLEMS

Bardstown, Ky.—Editor Motor Age—Through the Readers' Clearing House will Motor age give me some information relative to the lubricating systems. 1—Is not the force-feed system superior to the circulating system as the oil is not filled with carbon and dirt? 2—Is the circulating system growing in popularity and are there many cars employing this system? 3—Does the 1910 Pope-Hartford car use a circulating system, as the oil is not fillled reservoir in the crankcase of this car become dirty and filled with carbon? 5—Does the oil that is fed to the cylinders flow down to the crankcase reservoir after it is used? 6—Is not 80 pounds about the average compression of motor cars? 7—Do any 1910 cars use 90 or 100 pounds? 8—What is the advantage of high compression? 9—Is an offset crankshaft of more advantage than offset cylinders?—Claude W. Wilson.

1—In the circulating systems the oil once used is filtered or strained through two or three thicknesses of fine-mesh wire gauze, so that none of the metallic or carbon deposits in it are re-circulated. In these systems the oil is often changed every 250 or 300 miles.

2—The circulating system is growing in popularity and many cars now use it. The advantage of it is that the oil is kept at a uniform temperature irrespective of the temperature, and with this system there is a commendable absence of copper tubes leading the oil to the several motor parts.

3—This car has a circulating oil system which differs from the conventional circulating system in that there is a mechanical oiler located above the crankcase on the right side of the cylinders. The oil is pumped from this lubricator to the cylinders and the main bearings are lubricated by splash. The crankcase is constructed with an oil reservoir underneath and cast integral with it, and a large suction pump is used to lift the oil from this reservoir into the mechanical lubricator.

The oil pumped by the lubricator to the cylinders furnishes the supply in the crankcase, and when a certain level is reached it flows through standpipes fitted with gauze strainers into the reservoir, beneath the crankcase.

4—As to whether this oil becomes dirty and filled with carbon depends largely on the operation of the car and the adjustment of the carbureter.

5—Yes.

6—Approximately.

7—Motor Age is unable to answer this at present.

8—The advantage of high compression is greater power because of the greater force imparted to the piston. The higher the compression the greater the explosive force.

9—It does not make any difference which is offset, it being a case of six to one and half dozen the other. If you speak of the crankshaft being offset, this offset is in relation to the cylinder bore, and if you speak of the cylinders being offset, this is with reference to the axis of the crankshaft bearing.

TWO CARBURETER TROUBLES

Morris, Minn.—Editor Motor Age—In Motor Age, issue April 22, in answer to an inquiry from H. G. Boyd regarding his model 10, 1909 Buick, I notice that it is stated that the wiring of the magneto should be so arranged that cylinder No. 1 should spark at the 3 o'clock position, cylinder No. 3 at the 6 o'clock position, cylinder No. 4 at the 9 o'clock position and cylinder No. 2 at the 12 o'clock position. Will Motor Age kindly advise me through these columns whether or not this rule applies to all magnetos? Will this rule also apply to the timer on cars that do not use magnetos? Are all makes of cars timed to explode in the above order—that is, one, three, four, two, or are some cars timed to explode differently? I recently put a new timer and a four-unit coil on my four-cylinder car and am not sure that I got it wired correctly.

Will Motor Age make a drawing showing the proper wiring for a four-cylinder machine using storage battery for ignition? How can I find out which is the ground wire leading from the battery to the coil? Does it make any difference how the storage battery is wired—that is, to which post of the battery the ground coil is connected? I have connected my battery both ways and it seems to run as well one way as the other. What causes a Schebler carbureter to pop and spit fire out through the air valve of the carbureter? What causes a Holley carbureter to squirt gasoline 4 or 5 inches high through the little hole in the cap that screws down over the float adjustment when car is speeded to about 25 miles an hour? What is the proper height to set a float in a carbureter and how do you do it? I have used both of the above carbureters on my car and am unable to get anyone to adjust either of them so they will work satisfactorily.—A Subscriber.

The rule as stated in the issue of April 22, in regard to the arrangement of magneto wires, applies to all magnetos and timers, except those in which the revolving segments move in an anti-clockwise direction, in which the conditions are just the reverse. All motors do not explode in the above order. The order in which the cylinders of any motor explode may be readily ascertained by noting the order in which either the intake or exhaust valves operate. For instance: If on turning the motor over slowly in the direction in which it runs, the exhaust valve of No. 1 cylinder opens, then that of No. 4, and following it Nos. 3 and 2 respectively, it can be seen that the motor fires 1-4-3-2. The ground wire generally runs from the negative pole of the battery to some point on the motor. In most cases it does not make any difference which wire is connected up to the positive or negative poles of the battery, and it is even advisable to change them around occasionally to reverse the direction of the current through the coil; this being claimed to be beneficial to the platinum points of the vibrators.

Running the motor with a mixture containing too much air and not enough gasoline will cause almost any carbureter to pop and spit fire out through the air valve. This may also be brought about on some motors if the motor is speeded up with the spark fully advanced, then retarding the spark quickly. Weak valve springs, which fail to close the valves soon enough so that the incoming charge is preignited, also will cause explosions through the carbureter. Your trouble with the Holley carbureter is not characteristic of that device except when the float is intentionally held down, therefore it must have been due to something which interfered with the operation of the float or float-mechanism, or the valve which controlled the flow of gasoline into the float chamber. However, this cap being directly over the inlet valve, it is possible that if pressure feed were used or the head in the feed pipe unusually strong, the gasoline may have flowed into the carbureter with such force that it squirted through the cap, as you say.

The float adjustment varies in many carbureters of different design, therefore it is difficult to give a set rule which will correctly apply to all float-feed types; as a general rule, however, the float should be set so that the gasoline will stand as high as possible in the spraying nozzle without overflowing, or leaking when the motor is not running. Before changing the float adjustment of any carbureter Motor Age advises that the manufacturer of said carbureter be consulted as to the proper level necessary in the spraying nozzle. In most carbureters where provision is made for the adjustment of the gasoline level in the float chamber, which, of course, governs that of the spraying nozzle, the adjustment may be found on the needle valve which controls the feed to the carbureter; and by lengthening or shortening the distance between the point of the needle valve and its connection with the float lever, the supply of gasoline to the carbureter is cut off sooner or later, thereby regulating the level in the float chamber. In carbureters where no float adjustment is provided adjustment may be obtained by making the float a little lighter or heavier, or by advancing or retarding its action upon the needle valve or its mechanism. These operations may be done in so many different ways that no set method will apply. You say that you have used two prominent makes of carbureters, and that no one has been able to adjust either one so that they will work satisfactorily. Now is it not possible that your trouble lies elsewhere? If you will give the name of your motor, tell how it works, and how you think it should work, Motor Age will endeavor to locate the cause and furnish a remedy for your trouble.

SOLIDS AND PNEUMATICS

Paducah, Ky.—Editor Motor Age—Will Motor Age inform me whether or not solid rubber tires would be more suitable for my 15-horsepower motor car than pneumatics. I live 12 miles from a repair shop and do not run my car faster than 12 miles per hour.—Reader.

If you do not drive faster than 12 miles per hour solid rubber tires of the anti-skid type could be used. There are a variety of solid rubber tires, some with corrugations to add resiliency and prevent skidding; others with annular holes in the tread, which accomplishes the same result. Up to 12 miles per hour there is little additional vibration because of the solid rubber tires, but you must realize that a skid with a solid rubber tire is much worse than with a pneumatic.

REPAIRING A CUSHION TIRE

Iuka, Kans.—Editor Motor Age—Will Motor Age through the Readers' Clearing House give the best method of repairing a 1⅛-inch cushion tire which has begun to split?—Jay B. Tremaine.

If the split is in one part of the tire only and the remainder is in good shape, the tire can be repaired at any good factory branch by cutting out the split part and inserting a good length in its place, the inserted portion being put in under compression.

WISCONSIN VALVELESS MOTOR

Trenton, N. J.—Editor Motor Age—Through the Readers' Clearing House will Motor Age advise me where the two-cycle valveless engine, known as the Wisconsin valveless engine, is built?—John G. Bellis.

Motor Age has no data on who manufactures this motor, but would appreciate information on this motor from any of its readers. Address communications to this department.

Legal Lights and Side Lights

SLIDING SCALE OF FINES

JUST as soon as a justice can be found who will enforce the sliding scale of fines adopted by the board of trustees of Kenilworth, one of Chicago's north shore suburbs, the village will start a campaign against scorching. At the present time, though, it is experiencing trouble finding a judge who will do this, the Kenilworth magistrate having balked. Kenilworth claims to be desperate because of the fast driving along Sheridan road, which it is necessary to cross to reach the shore of the lake, where the bathing beach is located. Fearing for their children the trustees have dug up the hatchet and announced a new schedule. They say they will permit a speed of 20 miles an hour, which is 5 miles faster than the law specifies. But at 20 they draw the line. For speeds faster than that they will arrest and fine $1 a mile. For instance, 21 miles an hour means a fine of $21, 22 means $22 and so on up to 25. For 26 miles the fine will be double—$52—and will continue at that rate to 30 miles. Over 30 miles means a minimum fine of $100. Kenilworth always has been most lenient in its attitude towards motorists and last year coöperated with the Chicago Automobile Club in attempting to slow the reckless ones. Now it says it is going to try the sliding scale and it believes it will be able to hold down the pace to 20 miles an hour.

ONE ROAD LAW SETTLED

Many times the question is asked as to whether or not it is compulsory on the part of the driver of the vehicle ahead to yield part of the road upon demand. An answer to this may be found in Mark vs. Fritsch, 88 N. E. (N. Y.) 380. In this case two motor cars were going the same way on a highway and the rear car, being higher powered and desiring to avoid the dust of the car ahead, asked repeatedly for road privileges, and at last attempted to pass. The evidence was in conflict as to the respective guilt of the two parties, but in some manner the car ahead—plaintiff's—was crowded off the road and injured. The lower court found for the defendant and the case was affirmed on appeal. The court says in substance that the common law rules applicable to ordinary vehicles are equally applicable to motor cars, except where changed by statute. That when two cars are going in the same direction the car ahead has the privilege of the road, which may be enjoyed within reasonable limitations without interruption. That, however, when a car behind wishes to pass and the road is not sufficient to allow such car to pass without the car ahead turning aside, then upon proper request made the car ahead must turn aside if it can do so without danger, and allow the rear car to pass at the left side. The rear car in such a case cannot ask the right to pass at a point in the road where the act of turning aside might endanger the car ahead, and if such demand is made the car ahead may refuse to accede to it.

DECIDES A RACING SUIT

A spectator went to see the grand prix race in 1907, near Dieppe. During the race a tire on Jenatzy's Mercedes racer flew off and struck the spectator, a woman, injuring her slightly. Suit was begun against the Automobile Club of France, promoters of the race, and against the Mercedes, makers as owner of the racing car driven by Jenatzy. The plaintiff claimed damages because she had suffered a nervous breakdown, and generally poor health. The club, through its lawyer, held that it could not be made a party to the suit, inasmuch as it was specifically stated in the rules and regulations governing the race that any civil or penal responsibilities would be up to the manufacturers entering the cars. The makers of the Mercedes racer, on the other hand, held that the plaintiff had failed to state if the causes of the accident were due to a fault of the driver, a vice of construction or to the bad condition of the course. In deciding the case against the makers, the court held that it was due to the excessive speed at which the car was being driven that the accident was due, that the fact of permitting a car to be driven at such terrific speed and not being absolutely sure that all its parts were in condition to withstand such speed or resist it, was a cause rendering the manufacturing concern liable to pay damages. It was held further by the court that the claim of the concern that the driver was not in its employ was not correct. It was held that the company was responsible for the car as well as the man driving it and that article 1384 of the civil code covered that point, by stating or holding that one is responsible for the damage caused by persons which are under one's control and for things which one guards or takes care of. The court held that the manufacturers could not claim that Jenatzy was not their real representative or agent in the race and that it was up to him—Jenatzy—to look to it that his car and all the parts were in such a condition as to prevent an accident. The court held also that the Automobile Club of France was not a party in the case, as nothing could be shown or proven to have been done by the club which would have made it at fault or caused to be at fault. The plaintiff was allowed $4,000 damages, to be paid by the Mercedes manufacturers.

NEW CONNECTICUT LAW

The secretary of state of Connecticut has isued a pamphlet giving in detail the new motor car law. The governor, when he signed this bill, did so with the tacit understanding that there should be amendments attached thereto. One of these amendments covers registration. The general law became operative on September 1. All registrations expire on December 31 in any one year and a pro rata reduction in fees is allowed on applications for registrations filed after the first day of June in any year. The tax is $5 for commercial cars regardless of power and $10 for each vehicle operated by a liveryman. For cars above 25 horsepower registration is at the rate of 60 cents per horsepower. For cars under 25 horsepower the rate is 50 cents per horsepower. Computation of power of motors is based on the A. L. A. M. formula. In the case of the maximum and minimum rating of a car being given, registration is based on the maximum power. The table issued by the secretary of state covers cars and cost of registration of from 1 to 80 horsepower and for a year or less. For instance, an 80 horsepower car under the new law registered for a year costs $48. If the car is registered in June, license expiring December 31, the fee is $28, $24 if registered in July and so on.

STATE LAW SUPREME

Municipal ordinances regulating the speed of motor cars and motor cycles are null and void, if the state has made adequate provision covering such cases, according to a decision by the municipal court at Stevens Point, Wis. Three residents were arrested on the charge of exceeding the speed limit of 10 miles an hour, fixed by a city ordinance. However, the state law provides for a speed limit of 12 miles an hour in cities and villages and 25 miles in the country districts and the judge dismissed the cases, deciding that the state law supersedes the municipal law. It also developed that prosecutions must be brought in the name of the state and fines, if imposed, accrue to the state.

SUSTAINED THE MOTORIST

Five horses were being promenaded by one caretaker or helper on a French road. A motor car was approaching and the driver sounded the required signals. When the car was just about opposite the horses some of them bolted and kicked the car, damaging it to the extent of several hundred francs. The car owner had the matter recorded by the local policeman and brought suit for the damage caused. In deciding in favor of the motorist the court remarked that under present day traffic conditions it is extremely imprudent to let five horses be taken care of by one man.

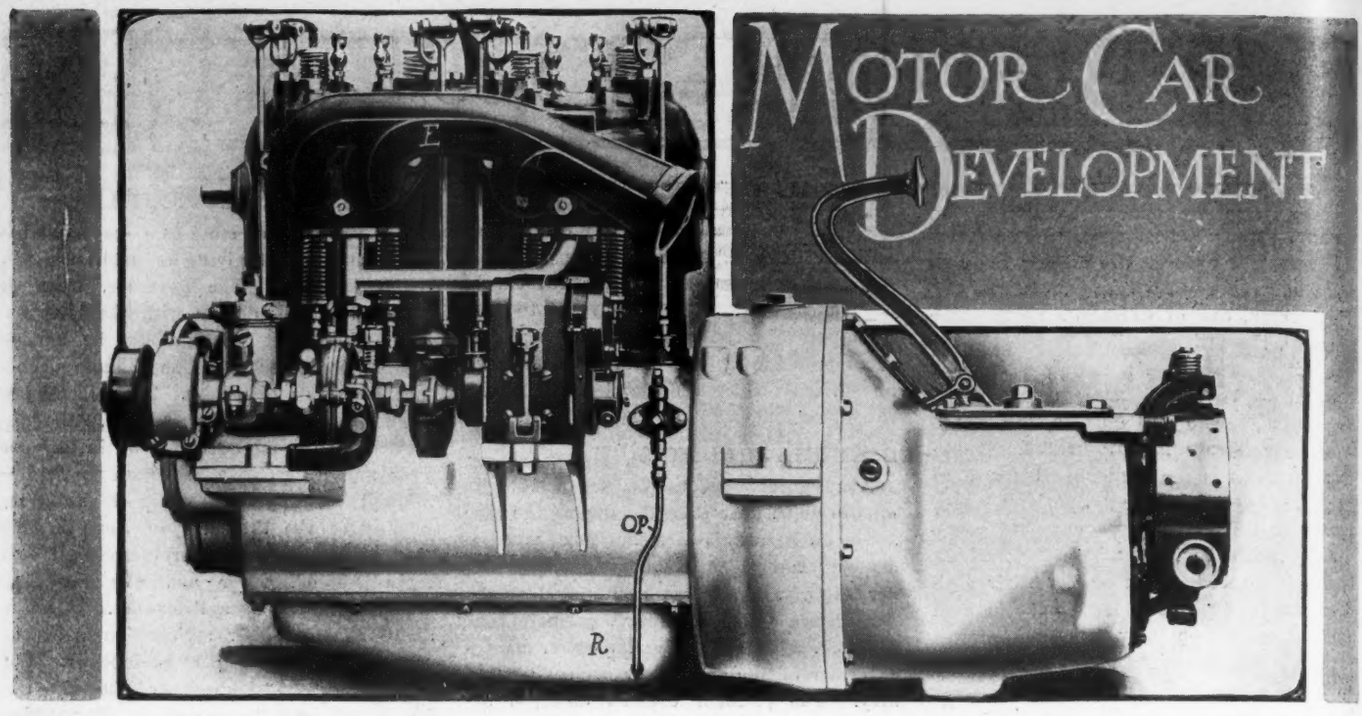


FIG. 1—CHALMERS THIRTY MOTOR WITH NEW EXHAUST MANIFOLD

FEATURE OF CHALMERS THIRTY FOR 1910
Double Drop Frame with Heavier Side Members
Unit Power Plant with En Bloc Motor
Larger Cylinders, Valves and Tires

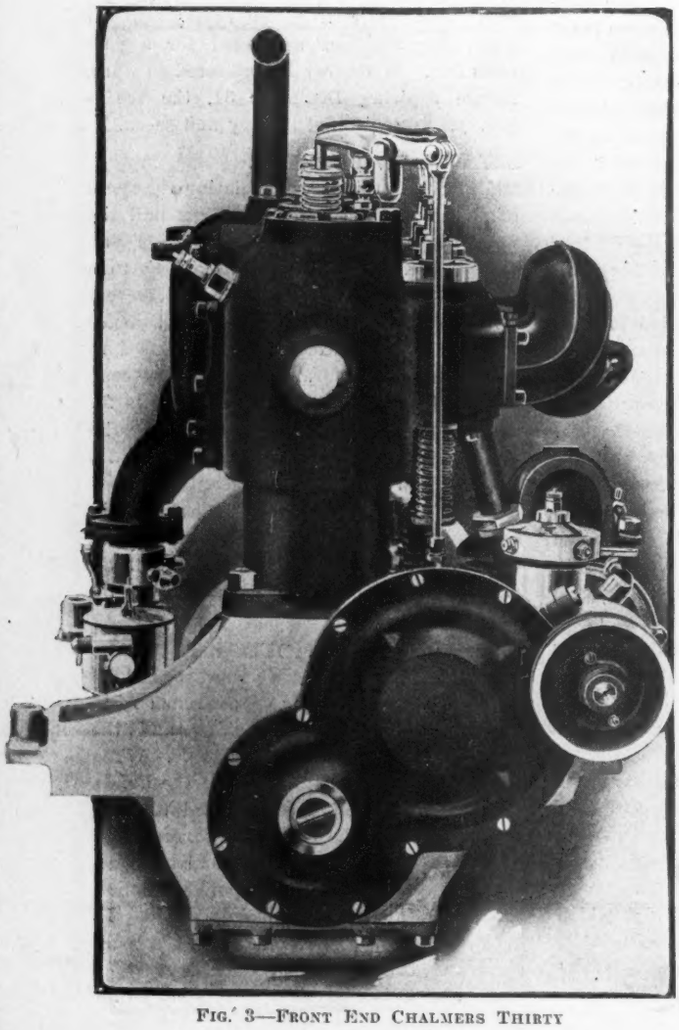


FIG. 3—FRONT END CHALMERS THIRTY

THE Chalmers-Detroit Motor Co., Detroit, has had its two 1910 models on the road for several months, these being designated respectively the Chalmers Thirty and Chalmers Forty. Both are continuations of the present season's cars, but with numerous improvements. In the following description the Thirty is dealt with first, its description being without any reference whatever to the Forty.

The Chalmers Thirty is a unique car in America, in that it uses cylinders in one casting and a very compact unit power plant consisting of motor, clutch with inclosed fly-wheel, and the gearbox. Figs. 1 and 2 illustrate this. The 1910 model has been changed over that of the present season in that the cylinders are 4 by 4½, as compared with the 3⅞-inch bore now. This size gives a formula rating of 25.6. The use of the two-bearing crankshaft is continued, the shaft having but three offsets, so that the second and third cylinder connecting rods attach to one long crankpin. The bearings used are of the annual ball type and from the center of one to the center of the other is but 19 7/16 inches. The crankshaft has a diameter of 2⅛ inches. Using a two-bearing crankshaft and casting cylinders en bloc has resulted in a particularly compact motor, the hood being but 26¼ inches long. From the back of the radiator to the front of the dash is 28 5/16 inches and the overall length of the motor from the flange on the flywheel to the end of the pumpshaft is 29¾ inches. This compact power plant permits of suspending the entire motor and body well between the axles, which was done this year with the wheelbase 110 inches in length, but with a 115-inch wheelbase for next year it is possible to secure an improved suspension of the body with reference to the axle as well as a better body design.

Motor of High-Speed Type

This motor is a high-speed type and uses intake valves 2½ inches in diameter, located in the cylinder head and operated by rocker arms, Fig. 8. The cylinder casting is made with an offset on the left side in the base of which is accommodated the exhaust valves, 1⅞ inches in diameter, which valves are opened by direct lift from the camshaft. The exhaust manifold E, Fig. 1, is now made with a diameter of 2½ inches, as compared with 1¾ inches this season. The company continues the use of a side plate P, Fig. 2, forming an outer wall of the waterjacket, and having formed integral with it the intake manifold M, this incorporating of the intake manifold with the waterjacket having in view the preventing of condensation of entering gases, by maintaining a uniform temperature of the manifold.

The only change in the oiling system of the motor has been the more accessible location of the plunger oil pump on the exhaust side of the motor. This pump is driven by cam from the camshaft and lifts oil from the reservoir, R, Fig. 1, through the pipe OP and delivers it to the

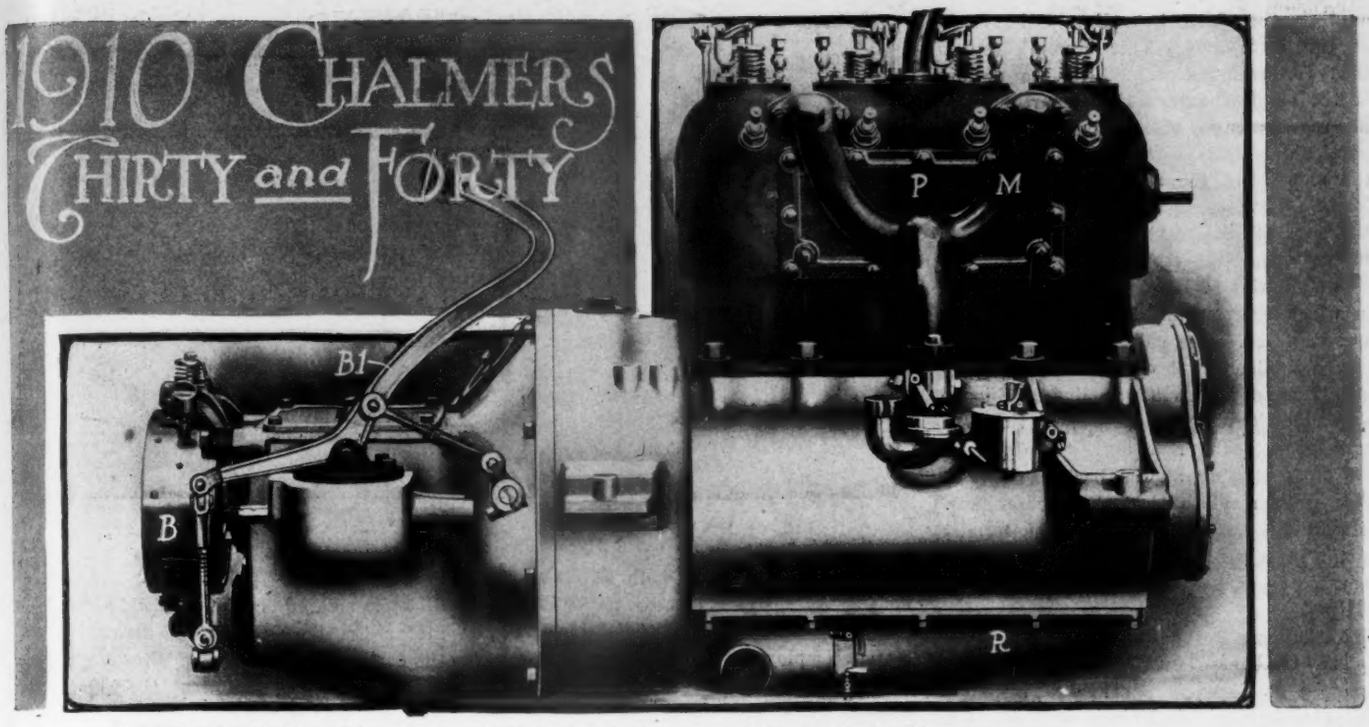


FIG. 2—INTAKE SIDE AND POWER PLANT OF 1910 CHALMERS THIRTY

front of the crank-case, whence a level is supplied within the case for splash lubrication on the cylinder walls and pistons. The use of annular bearings carrying the crankshaft simplifies the lubrication considerably. Once the oil is used it returns to the reservoir R, whence it is filtered and ready for circulation again. Fig. 2 shows the reservoir R fitted on the right side with two drain cocks, one for determining the proper level and the other to drain off the oil. The top of the detachable reservoir R is a concave receptacle having three transverse partitions, so that provision is made for maintaining an oil level, into which the connecting rods dip.

Cooling of the Motor

In the cooling of the motor special arrangements have been made for copious waterjacketing of the cylinder walls in spite of the fact that the four cylinders are in one casting. There is, however, a water space between adjacent cylinder walls, permitting of the circulation being entirely around the casting as well as providing waterjacketed spaces around the exhaust valves, which is new in the 1910 model, this feature not having been used during the present season.

In Fig. 5 is illustrated the general layout of the clutch and selective gearset. The clutch, being of the multiple-disk type, contains in all thirty-one disks arranged in alternate sets, sixteen bronze ones constituting one set and fifteen steel ones another set. Engagement is through a series of small coiled springs regularly spaced and operating upon the face of the disk holder. This clutch operates continuously in oil and, as illustrated in Fig. 2, is connected with the running brake B on the end of the transmission shaft. This is compactly accomplished by a pedal B1 mounted on a boss of the gearbox and from which a connecting link connects with the shaft for disengaging the clutch. This is an adjustable interconnection and is so timed that the clutch is disengaged before the brake is applied. As illustrated the pedal and its connection on the brake are a unit with the motor plant. Fig. 5 illustrates the simple method of adjusting this brake through the finger wheel A, which is particularly accessible. The transmission set affords three forward speeds operated selectively, and giving direct drive on high speed. The gearset is a vertical design having the main-shaft directly above the countershaft. From this set drive is direct to the rear axle through an inclosed propellor shaft fitted with but one universal joint. This tubing serves as a torsion bar and is supported at its forward end from a cross member of the frame. The back axle is the floating type fitted throughout with annular ball bearings.

Change in Running Gear

A notable change in the running gear is the use of the double drop frame, Fig. 10, an arrow indicating the drop midway of the chassis, and

FEATURES OF CHALMERS FORTY FOR 1910

Motor Separate Unit with Cylinders Cast in Pairs
Double Drop Frame, New Rear Axle
Improvements in Clutch and Transmission

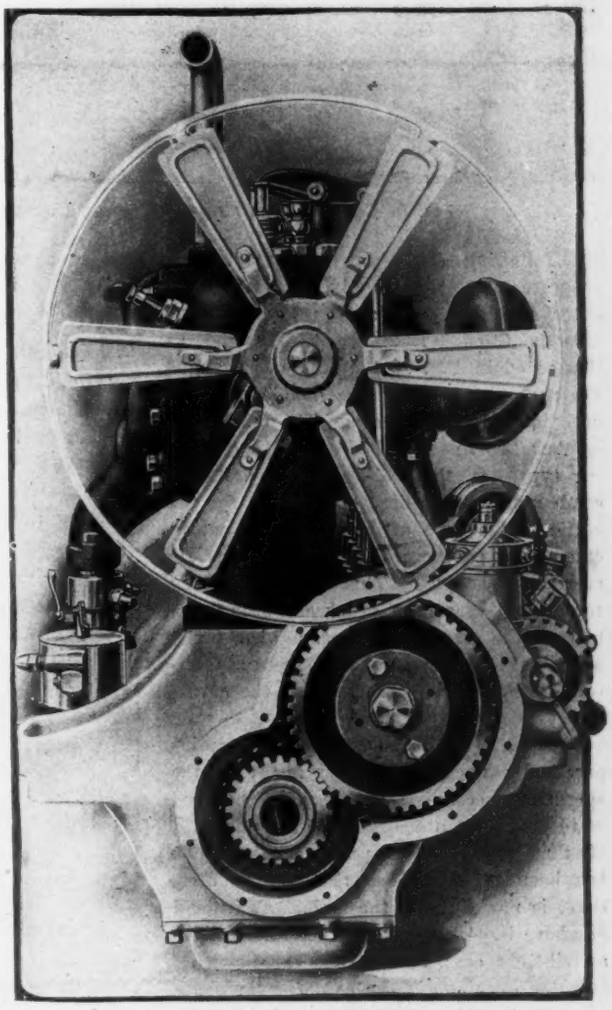


FIG. 4—FRONT ASSEMBLY CHALMERS THIRTY

another the drop immediately in front of the back axle. This double drop is used for two reasons: First, to permit of the employment of three-quarter elliptic rear springs, and second to give a particularly low entrance to the tonneau. the step from the running board to the tonneau floor being very slight. The side members of the frame are heavier than formerly, the framework showing a remarkable similarity to the best foreign practice, in which exceptionally stout side members are employed. The side channels members have a vertical depth of 4 inches, with 3½-inch channel lips. These lips are made specially wide from the offset at the dash and taper to the rear until the union of the cross member at the back is reached. This greater width throughout three-quarters of the frame length adds materially to the strength. A notable feature is the increase in tire sizes from 32 and 3½ to 34 by 3½.

The Chalmers Forty

The Chalmers-Detroit Forty model remains a 40-horsepower car with cylinders in pairs having 5-inch bore and 4¾-inch stroke. This is the model with which Lorimer made such a phenomenal showing at the Lowell stock chassis races. This model differs very materially from the Thirty in

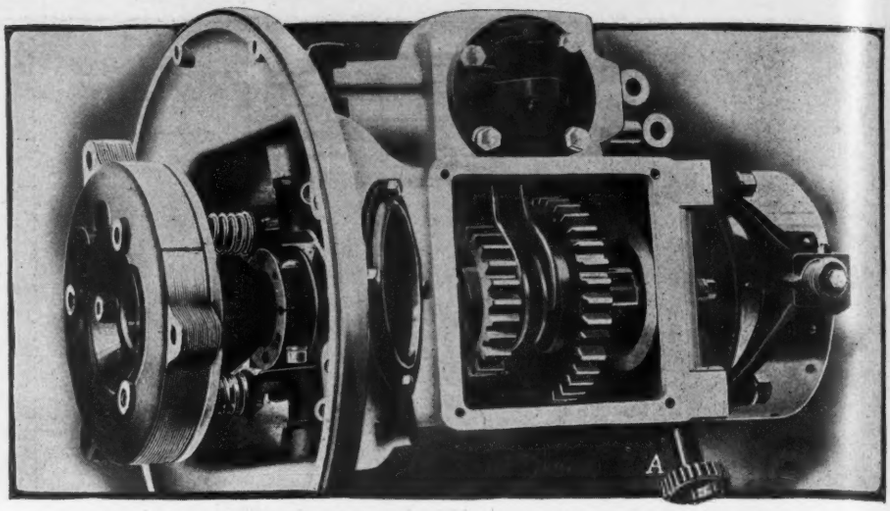


FIG. 5—MULTIPLE DISK CLUTCH AND TRANSMISSION OF CHALMERS THIRTY

are used throughout on both shafts of this model. As this year, so next, power is transmitted to the rear axle through a universal system employing two joints, one at the front and the other at the rear of the propellorshaft, but a change is made in the torsion system, this being a triangular arm as used on many of the high-priced cars instead of a single leaf. The rear axle is new and is a pressed steel exterior autogenously

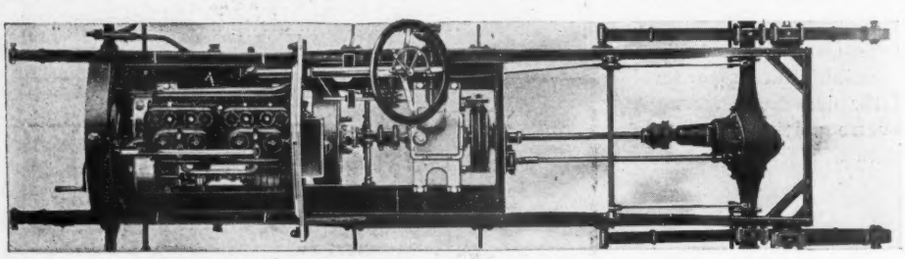


FIG. 6—LOOKING DOWN ON CHASSIS OF CHALMERS-DETROIT FORTY

the following respects: The motor is a separate unit, the selective gearset is located amidship, and a new type of rear axle is fitted. Like the Thirty and as illustrated in Fig. 10 the frame is changed for next year, having the double drop, as designated by the arrows. The crankshaft employed in this model is of the three-bearing type. In the cooling system a honeycomb radiator has been substituted for the vertical tube type of former years, but in other respects the refrigerator systems remained unchanged. This model has used for several seasons a crankcase oiling system of the circulating type, a gear pump being used to elevate the oil from a reservoir incorporated in the base of the crankcase.

The leather-faced cone clutch remains practically unchanged, excepting that the operating mechanism has been so modified as to lessen the pressure needed to one-third of that required this year. The gearbox has been redesigned so that the countershaft is now beneath the mainshaft instead of above it. This makes it possible to have an oil-tight case, as the caps can be fitted over the openings in the case for the countershaft bearings. Annular ball bearings welded along the neutral axis so that the truss rod is not needed. Three-quarter elliptic springs are used at the rear.

MOTOR CAR LITERATURE

"Road Preservation with Tarvia" is an interesting, neatly-illustrated booklet from the Barrett Mfg. Co., dealing with the preservation of macadam roads and dust preventatives. At the top of each page, forming a broad border effect, is a road scene where Tarvia is used in many of the large cities.

"Winton Six Upkeep Book" is a 9 by 6, sepia-colored book from the Winton Motor Carriage Co., containing copy of the certified records of the Winton owners' mileage and upkeep contest, the judges' report, list of the winners, drivers and owners' affidavits, mileage records and the winning chauffeurs' statements. An interesting subject for Winton users.

The Autolight and Motor Supply Co., has sent to the trade a new 152-page catalog of standard accessories and supplies. Included in this, under the caption, "A Few Pointers," is given some valuable data, such as anti-freezing solutions, clincher rim measurements, metric tire sizes and American equivalents, electrical don'ts, etc.

Interesting to the industrial and commercial world is the illustrated and descriptive catalog of the Frayer-Miller blower-cooled trucks and delivery wagons from the Oscar Lear Automobile Co., Springfield, O. A perusal of the catalog, which contains ten full-paged illustrations of some of this company's products, gives a general idea of the scope of its commercial vehicles.

Motorists interested in the latest improvements in the speedometer field, will find timely information in the 1910, two-colored catalog from the Stewart & Clark Mfg. Co., entitled the "Stewart Multipolar Speedometer."

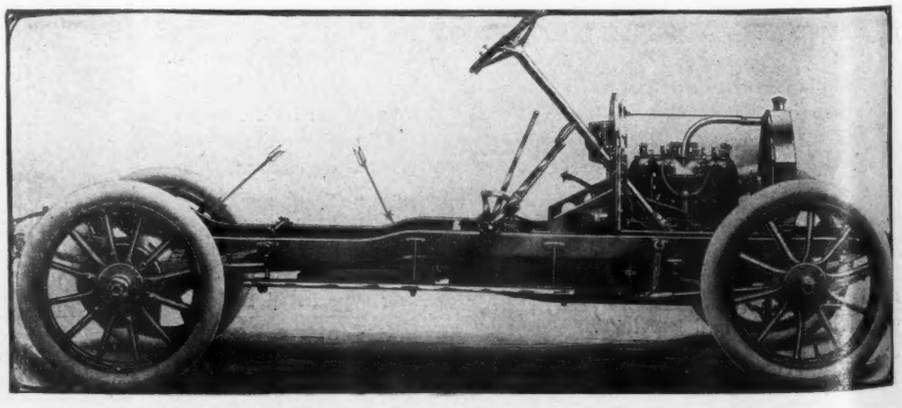


FIG. 7—CHALMERS THIRTY CHASSIS WITH DOUBLE DROP IN FRAME

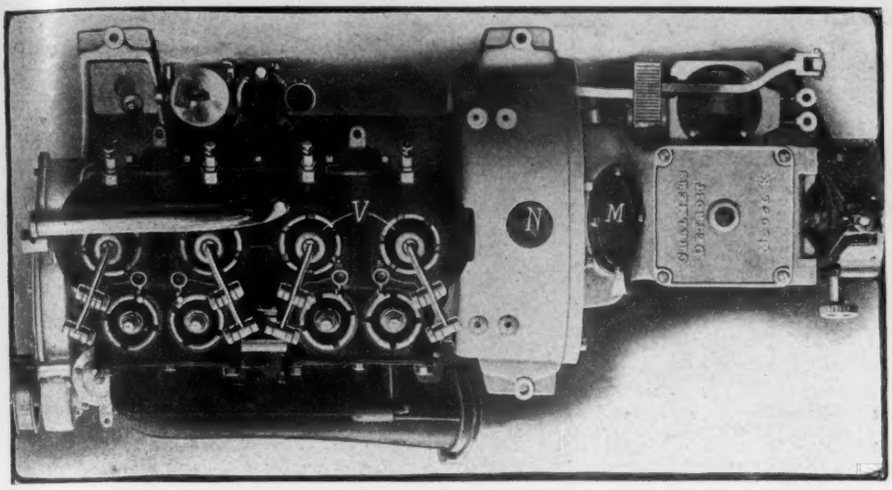


FIG. 8—TOP VIEW OF CHALMERS THIRTY UNIT POWER PLANT

The American Tap and Die Co., Greenfield, Mass., in its No. 3, 1909 catalog of machinists' tools, calls particular attention to the high state of perfection reached in its Adamantine screw plates for motor car work.

From the Milwaukee Locomotive Mfg. Co., is an interesting publication on gasoline-driven locomotives.

The Holsman Automobile Co., in its first 1910 catalog and price list, pictures and describes its high-wheeled vehicles and delivery wagons in a conventional manner. A number of interesting illustrations of the Holsman in native and foreign lands are presented, as also a few factory views.

The Economy Mfg. Co., in a two-paged booklet illustrates and describes its Perfection magnetos and battery charges.

"Bulletin No. 12" from the K-W Ignition Co., Cleveland, O., illustrates and describes in a comprehensive manner its products, including magnetos, coils and searchlights. Particular attention is drawn to their new lighting magnetos for searchlight purposes in addition to ignition. Several wiring diagrams are shown.

A circular from the H. W. Johns-Manville Co., New York, draws attention to one of its specialties—the J-M Non-Burn brake band lining.

The "Seeley Ignition System" is the title of an attractive catalog recently issued by the High Frequency Ignition Coil Co., Los Angeles, Cal., which contains complete information about its ignition outfits.

A strikingly printed poster in five colors is being mailed by the Moon Motor Car Co., St. Louis, Mo., announcing its models for the 1910 season.

The Packard Motor Car Co., through the medium of an ecru-colored folder, calls attention to its trucks as used on one of the routes of the Standard Varnish Works.

The Automobile Club of America has mailed to its members and tourists of the bureau of tours its 1909 tour book, containing over 400 routes throughout the United States. Also incorporated is a digest of all the state motor laws, officially-appointed and recommended hotels and restaurants, garages and repair shops, ferry time tables, and several diagrammatic maps.

Another route book is from the Studebaker Automobile Co., covering a great many routes in and out of South Bend. Several sectional maps, together with a guide map, add to the value of this book.

The Denver Motor Club, already an active factor in the motoring world, though only a little more than a year old, has emulated some of the older clubs by publishing "The Colorado Motorists' Official Guide and Hand Book," a 5 by 6½ paper-covered book for its members. This little guide book gives a brief recital of the "accidental meeting of a few motorists," of which the club is the outgrowth, sets forth the aim of the club and enumerates some of its activities in the contest line; also incorporates the Denver motor laws and ordinances as well as a digest of the laws in some of the other large towns and cities in the state, guide maps showing not only the good but the passable roads, and twenty-two routes with distances. A complete list of the club members is given, and a list of motor car owners in other cities of Colorado. The club is to be congratulated on its first efforts in this direction, and its many successful contests and other activities prove conclusively that the club motto, "Something Doing," is not a dismomer.

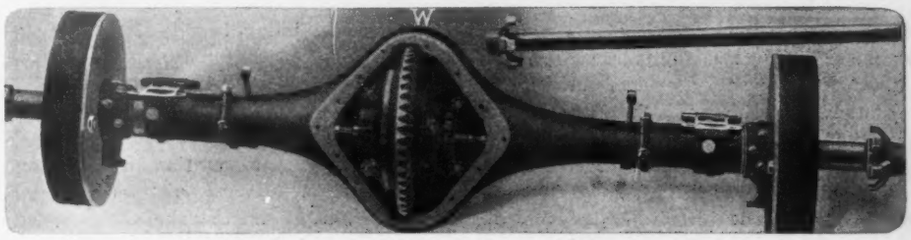


FIG. 9—NEW CHALMERS-DETROIT FULL FLOATING REAR AXLE

"Firestone" is the title of an attractive and interesting catalog from the Firestone Tire and Rubber Co., Akron, O., which describes and illustrates its line of 1910 demountable rims for use of quick detachable and clincher tires. The operation of the tools generally employed for the purpose of tire-changing with these rims is fully explained. The cover is a two-toned brown on buff-colored stock; the text is printed in brown, and the cuts and border are delicate half-tones in black.

A RECORD FOR DRY CELLS

In a recent communication, Motor Age is informed that the Atwater Kent Mfg. Works is in receipt of a letter from A. J. Smith, a dealer of Los Angeles, Cal., who states that with a four-cylinder motor car he drove 484 miles from San Francisco to Los Angeles, on six dry cells, four of which were practically dead as far as an ampere reading was concerned, the other two testing about 3 amperes each. At the end of the trip the motor was stopped, and started again several times on the switch, and on again testing the batteries, four were apparently the same, practically dead, and the others tested 2 amperes each while the motor ran all right.

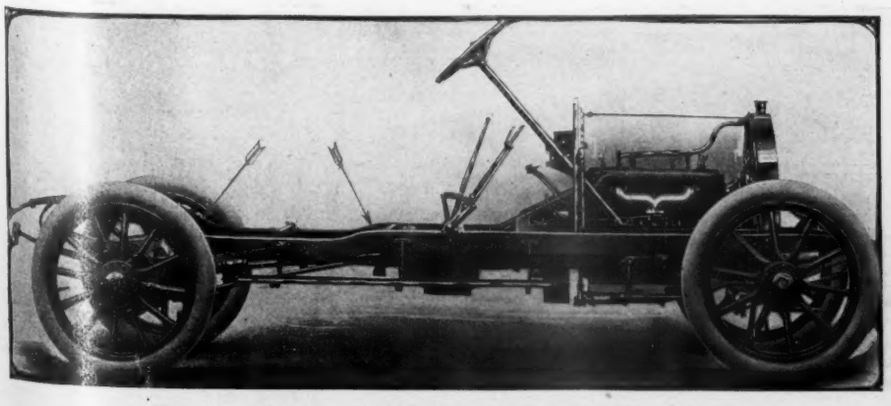


FIG. 10—CHASSIS OF 1910 MODEL CHALMERS-DETROIT FORTY

The 15-30 Horse Power

FOR next year the F. B. Stearns Co., Cleveland, O., will continue its two models, the 15-30 shaft-driven town car, in toy tonneau touring car, limousine and landaulet styles, and a 30-60-horsepower car with shaft and chain drive in the regular body types. The new series of the 15-30 car, which is described here, varies but slightly from the 1909 style, one of the most notable changes being illustrated in Fig. 1, and is in connection with the attachment of three-quarter elliptical springs S to the frame. Instead of the usual brackets securing the upper quarter Q of these springs to the frame, provision has been made in the frame itself by means of a heavy channel cross member C, which is of sufficient depth to permit the side members F of the frame to pass through it. An opening for these side members is formed by cutting out the cross piece C at G and turning it at right angles so as to form a brace work which rivets to the side members of the frame. This cross piece is in addition to the regular end cross member E of the frame, and its adoption gives a continuous spring support from side of the car to another.

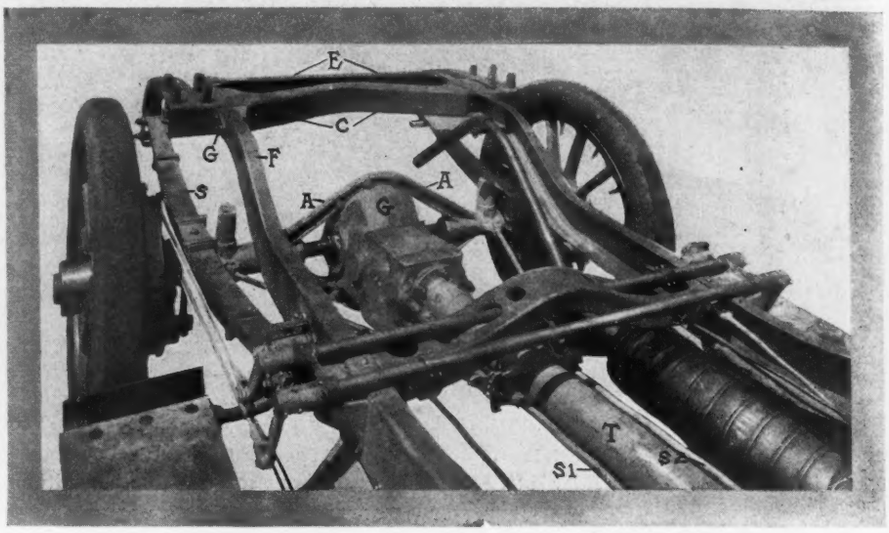


FIG. 1—STEARNS IMPROVED REAR SPRINGS ATTACHMENT

Dropping Center of Gravity

In Fig. 8, a side view of the chassis, attention is also called to the double drop D in the side members of the frame whereby the main level of the side members M is lower than the rear level of these members at N, this being done in order to give plenty of opportunity for use of the three-quarter elliptic springs and yet drop the center of gravity of the car as low as possible. This double drop allows of a very low step from the running board of the car to the tonneau. In addition to the double drop in the side members of the car there is a narrowing of these at the dash which permits of turning the vehicle in a 34-foot circle.

The 15-30 Stearns, although Stearns in every respect as far as details of construction are concerned, is widely different from the large Stearns car in that it uses a motor with four cylinders formed in one casting and carries a selective gearset on the rear axle. Still further difference in comparison with the large Stearns model is the employment of a multiple-disk clutch running in oil of Hele-Shaw construction. The alternate sets of disks have a series of corrugations which greatly increases the frictional area and prevents too sudden gripping.

The motor, an end section of which is shown in Fig. 4, has cylinders of 4½-inch bore and 4⅝-inch stroke, the formula rating being 32-horsepower. This motor is of the ball-bearing type. The crankshaft is carried on three annular ball bearings, the camshaft on three, and the pump-shaft is supplied with a bearing of this character. As illustrated in Fig. 4, the crankcase C is a one-piece construction with end plates through which the crankshaft with its bearings is inserted. Incorporated with the base of the crankcase is an oil reservoir R from which an oil pump O P elevates the oil and delivers it not to the crankshaft bearings, not to the cylinder walls, but sprays it onto the sides of the connecting rods, whence is is conducted through the channel and connecting rod to the lower connecting rod bearing. The overflow from these bearings supplies the crankcase. In the connecting rods the channel faces the side instead of the end of the motor and a drilled opening through the connecting rod just above the lower bearing gives a good opportunity for the oil to enter. It is because of using ball bearings for the crankshaft that a special lead to these

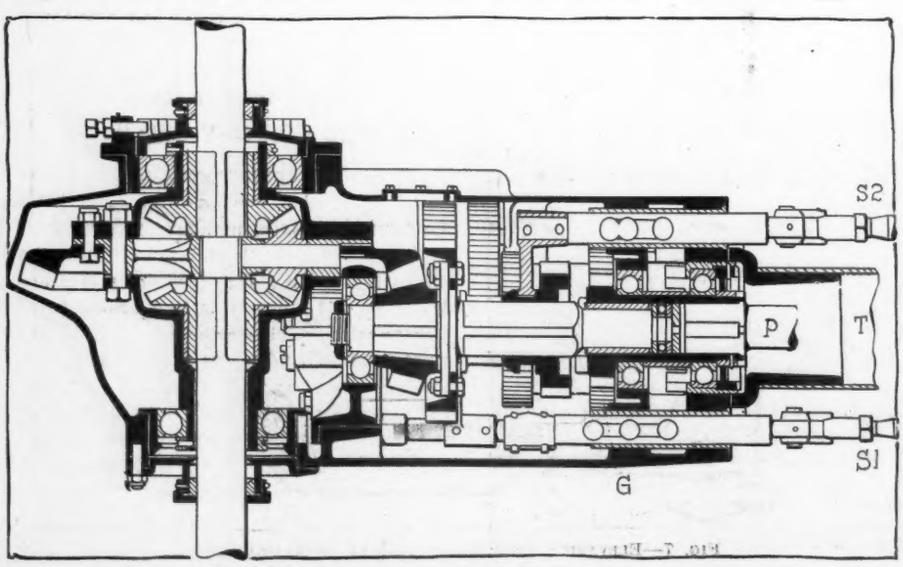


FIG. 3—PLAN SECTION OF STEARNS 15-30 TRANSMISSION

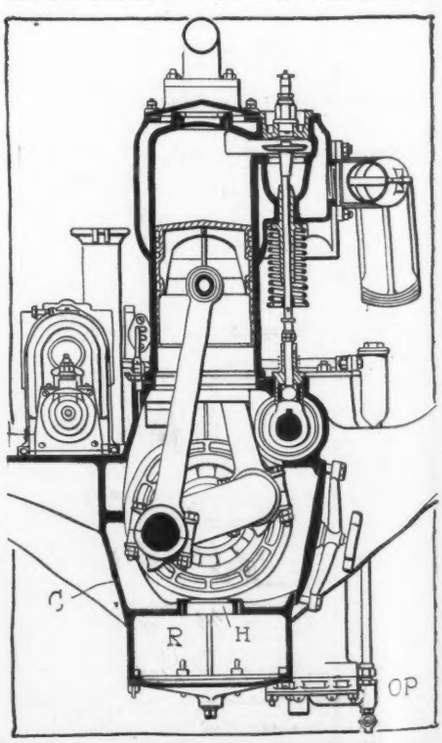


FIG. 4—END SECTION STEARNS MOTOR SHOWING MANY INTERESTING FEATURES

Stearns Car for 1910

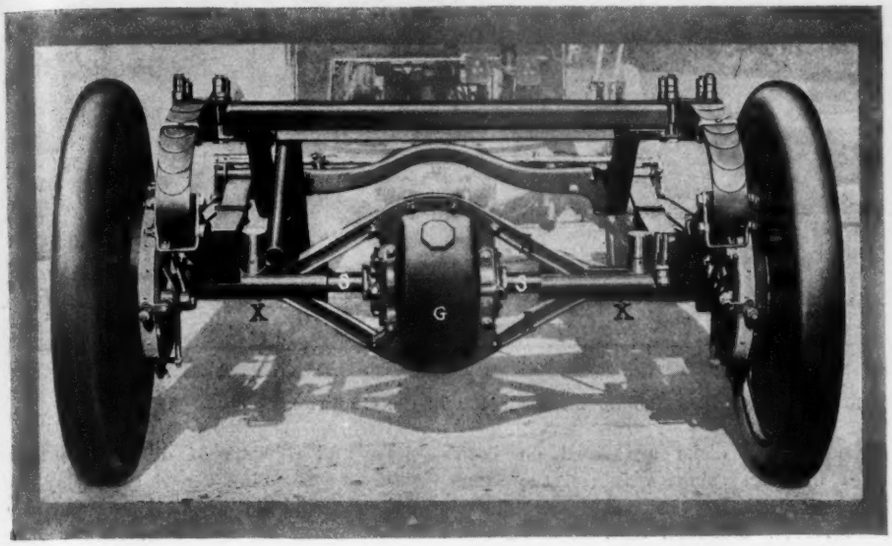


FIG. 2—SOLID REAR AXLE CONSTRUCTION OF 15-30 STEARNS

is not necessary, and the lower connecting rod bearings being of the plain type gives opportunity of making their lubrication specially certain. In the base of the crankcase proper is a series of low standpipes H of sufficient height to maintain an oil level in the crankcase deep enough for the connecting rods to dip into and furnish a splash for the cylinder walls. The wrist pins are lubricated by splash. The carbureter is the two-jet construction, the smaller jet being called upon only when developing up to 15-horsepower, above which the larger jet is brought into action. It is the regular Stearns one. Ignition is by the Bosch dual system.

In the transmission system the multiple disk clutch is illustrated in Fig. 6. The entire clutch being controlled in a barrel housing B which bolts to the flywheel cap. Only one disk of each set is illustrated, D representing the set attaching to the transmission shaft T through a hub construction H, which is a squared fit on the forward end of the shaft. The set D1 attaches to the flywheel through the hub part B. Each set contains a corrugation C which is a peculiar feature of it. By introduction of a ball bearing B the forward end of the shaft T is supported direct through this bearing on the small end of the crankshaft instead of having a bearing at this point as in many constructions. The spring S for the engagement of the disks is entirely controlled and transmits direct to the flywheel set of disks through a peculiarly shaped thumb bolt K which bears upon the corrugations of the end disk.

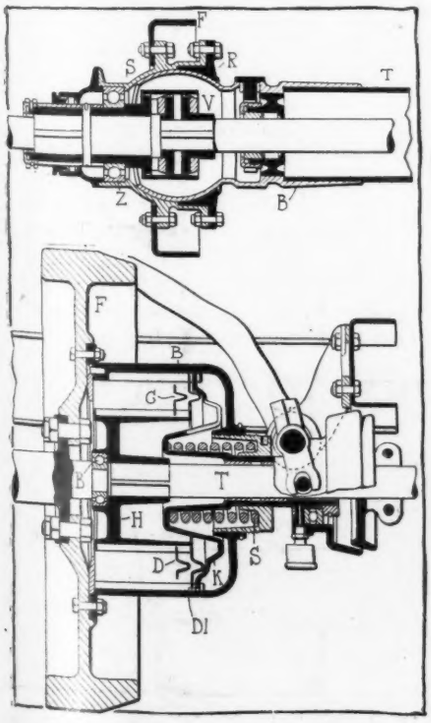


FIG. 5—STEARNS TORSION SUPPORT
FIG. 6—STEARNS MULTIPLE DISK CLUTCH

Fig. 2 illustrates the general scheme of the Stearns rear axle and transmission, which are combined. Of primary importance in this construction is the one-piece rear axle forging consisting of end pieces X which are drilled to accommodate the driveshafts S to the wheels and a pair of diamond-shaped arms A within which the nearest gearset G is fastened. This construction, now entering upon its second season, has for its object the incorporating in one of the advantages of shaft and chain drive. The entire weight is taken on the one-piece forging consisting of the parts X and A, and the drive through the shafts is the same as in the ordinary shaft-driven models.

Rear Axle Construction

Fig. 1 gives a clearer conception of this rear axle construction, showing the arms A for embracing the gearbox, as well as the extension of the gearbox which contains gears selectively operated for three forward and one reverse speeds. Rigidly bolted to the front end of the gearbox is the torsion tube T within which is the propellershaft, and at either side it can be seen the shifter rods S1 and S2, by which the different speeds are obtained. Fig. 5 illustrates how the forward end of the torsion tube T is supported, as well as showing at V the only universal joint used in this system. The cross member F of the frame is particularly deep, and carries the ball thrust socket S which is bolted to it. Within this socket operates the pivot ball B which attaches to the forward end of the torsion tube T, and by means of these two a universal action is accomplished to compensate for the up-and-down movement of the springs. The pivot ball B is held in place in the socket S by a thrust lock ring R which bolts to the socket. A ball bearing Z is provided for the short shaft S.

Selective Gearset Used

The selective gearset, which forms a unit with the rear axle, is illustrated in Figs. 3 and 7, the first being a view of the set

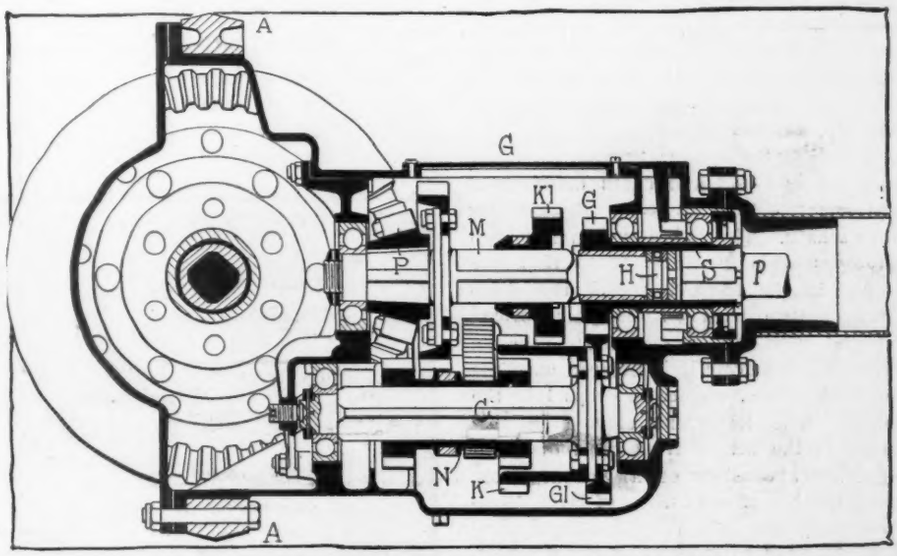


FIG. 7—ELEVATION 15-30 STEARNS REAR AXLE GEARSET

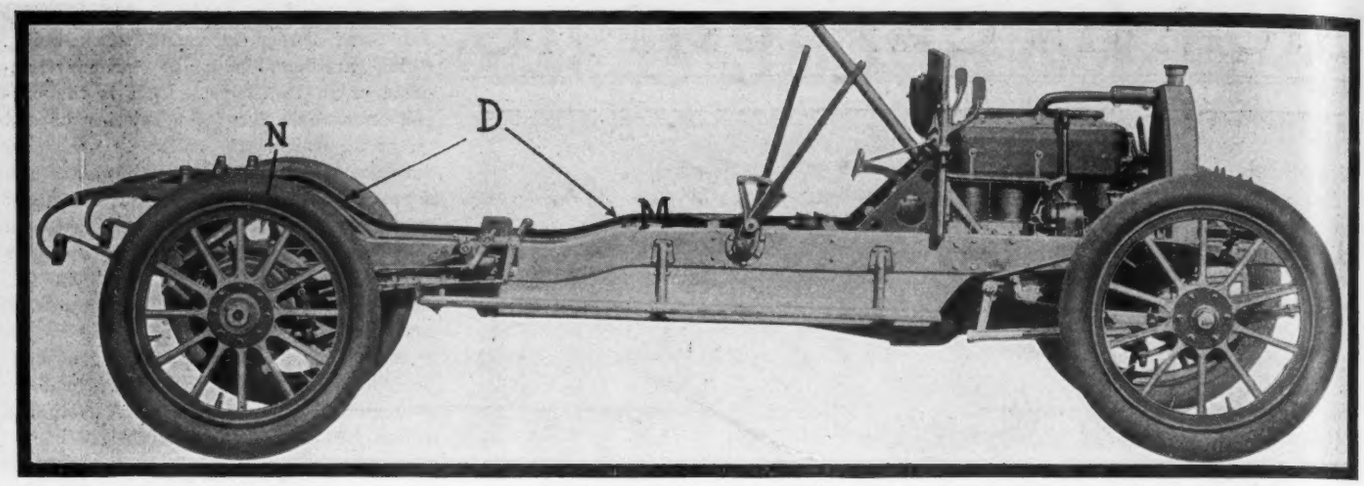


FIG. 8—CHASSIS OF 15-30 STEARNS, SHOWING DOUBLE DROP FRAME CONSTRUCTION

as seen from directly above the car and showing the rear part of the torsion tube T within which is the propellershaft P. On either side can be noted a shifter rod S1 and S2. Fig. 7 shows a side view of the case with a squared mainshaft M located above the squared countershaft C, and both carried on ball bearings. Of primary importance in this gearset is the shortness of the entire outfit, there being but two bearings for the mainshaft, a double race at the forward end suporting the short shaft S on which is the master gear G, and another bearing in rear of the pinion P which meshes with the bevel-gear. The shaft M has a long plain bearing at its forward end within the shaft S and a thrust bearing H is inserted at the forward end of the mainshaft. A novelty in construction appears in that to the gear G1 which meshes with the master gear G is bolted a tubular gear K which is designed to mesh with the sliding gear K1 on the mainshaft. Using this tubular gear allows of the sliding unit N on the countershaft operating within it and thus permitting of a particularly compact gearset. Fig.1 shows the forged arms A at the rear axle to which the gearbox G is supported at the rear end and the torsion tube T the only forward support. The brakes, internal and external, act directly on the rear wheel drums. The wheelbase is 116 inches.

The Big Stearns Cars

The 30-60-horsepower Stearns is manufactured in shaft and chain drive types and has not been radically changed for next season. The oiling system has been altered and is now similar to that employed in the 15-30, being of the circulating system with oil reservoir formed integral with the base of the crankcase. From this reservoir it is pumped onto the connecting rods, whence it drops into the splash. The important change in this model is the introduction of a dry disk clutch. It consists of a comparatively small number of steel disks of large diameter, held and driven by hardened steel keys, inserted in the rim of the flywheel. With the exception of the first and last these driving disks are lined on both sides with an asbestos fabric, the same being riveted to the disks by tubular steel rivets. Between each adjacent tier of these disks are the hardened and ground steel driven disks, having integral springs which separate the disks when the clutch is engaged. From these disks power is transmitted to the clutch drum, which is mounted on the ball-bearing projection of the crankshaft, and is connected to the primary shaft of the transmission by a universally jointed transmission.

Owing to the large size of the disks and the character of the material lining them the pressure required to operate this clutch is light and is supplied by six radially placed coil springs. A suitably mounted thrust block in connection with the pedal serves to release this spring pressure and disengage the clutch. The entire rotating part of the clutch is mounted within the flywheel and centered directly by the extension of the crankshaft in such a way that there is no possibility of the proper alignment of the rotating members being affected either by the operating mechanism or any misalignment or angularity of its driving connection to the transmission.

REMOVING CARBON

A novel and perhaps efficient method of removing carbon from the cylinders of a multi-cylinder motor has recently been suggested by an agent of the Rambler company, and consists of dropping a metal wash rag, the kind generally employed in the household for washing pots and pans, into one of the cylinders, then running the engine on the other cylinders for five or ten minutes. It is claimed that as the metal wash rag is dashed back and forth between the cylinder and piston heads the carbon deposited thereon is thoroughly loosened up and blown out through the exhaust. Now, whereas this method may be employed with a comparative degree of safety in motors whose cylinders have no offset or outboard valve chambers, there is a possibility of doing considerable damage when this operation is performed on motors with out-board valve-chambers. For instance, if this metal rag were to be thrown into one of the valve chambers so as to interfere with the valve action, something would have to give way or be severely strained. The valve ports into most cylinders, however, are too narrow to admit a contrivance of this kind, and as the tendency of the rag would be to move impetuously about the cylinder proper the danger from this source is small. In removing carbon from any motor, in any manner, it must be remembered that it is just as important to remove the deposit in and about the cylinder ports and valve-chambers, as from the explosion-chamber; and as this could not be accomplished by the above process it would be necessary to clean these parts by introducing a scraper through the cylinder plugs.

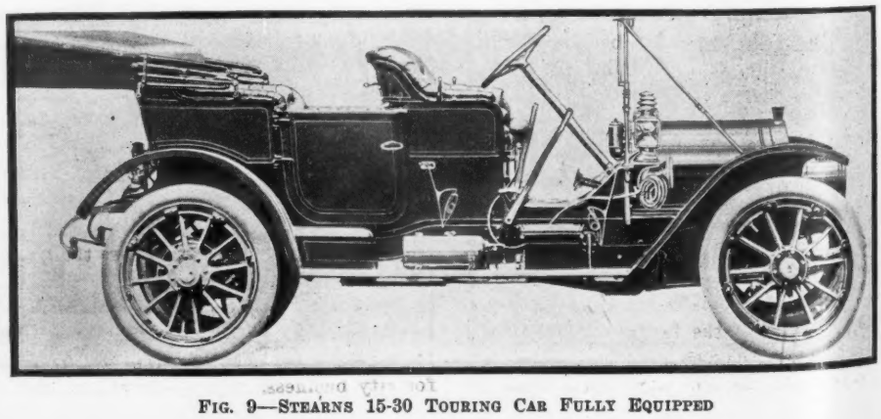


FIG. 9—STEARNS 15-30 TOURING CAR FULLY EQUIPPED

Manufacturers' Communications

INFLUENCE OF MOTOR CARS

SOUTH BEND, Ind.—Editor Motor Age—J. J. Hill's address before the meeting of the Bankers' Association of Chicago is most refreshing and gives the ordinary business man considerably more confidence in the mental grasp of those who control our financial affairs than is usually derived from contact with that class. A little acquaintance usually shows up the great financiers in the light of pursuing methods and entertaining mental points of view varying, according to circumstances, from those of a pawnbrokers to those of a professional gambler. There is one point, however, in regard to which Mr. Hill seems to be misinformed, namely, the favorable influence of the motor car upon the very conditions which he would like to bring about, namely, an increase of agricultural as compared with urban population. It looks as if the vast affairs with which he is concerned have compelled him to view the farmer collectively rather than individually, and he seems to be correspondingly unfamiliar with the change which the last 6 or 7 years and the advent of the motor car has made in the details of the farmer's life. Nor does he seem to recognize the large part which the motor car has and can be made to play in justifying the extension of his own railroads and in the preliminary work of opening up new territory with that ultimate object in view. We wonder if he recognizes the extent to which the individual farmer is beginning to specialize in the apparatus which he employs on his farm. No small number of agricultural implements now used by the farmer have their functions so combined with those of other implements which have heretofore been of general application as to supersede the latter and, consequently, materially specialize the type of apparatus and vehicles which he uses for other purposes. The advent of the motor car, while not directly responsible for it, has tended to facilitate this process. At one time there were a dozen uses for a certain kind of wagon which might be described today as an unspecialized type. Today a number of agricultural implements accomplish in themselves a part of the service which were heretofore accomplished by such wagons; and, with one exception, the remainder of the services performed by that wagon is now found to be better performed by a more specialized type; that exception is the transportation of the farmer and his people from one point to another. The new specialized type is not convenient for this purpose and the farmer resorts to the motor car. He goes to town every day perhaps and spends very little time in doing so, instead of every week at the expense of an entire day and services of a team.

The motor car makes the quarter-section farmers near neighbors and develops a sense of community in agricultural districts which was utterly impossible with the former methods of transportation. It makes the farmer's life and surroundings much more liberal, and under many conditions far more attractive even to the young people than the life of the city. As an example of the part the motor car is playing and can be made to play in the affairs with which he is concerned, it may be interesting for Mr. Hill to know that at the time the Belgian steel operators were migrating to the Baltic provinces of Russia in great numbers the resulting reduction in the population of some parts of Belgium was such that underwriters of certain extension of the Belgian railways seriously considered availing themselves of the use of the motor car to protect themselves against what would have been a decidedly unprofitable execution of that part of their obligations which called for the extension of the railway in the partially deserted districts.

The broad principles underlying this is, of course, equally applicable to any sparsely populated territory, irrespective of the cause of that sparseness. We venture the opinion that if the dissection of the census of 1920 is such as to reveal it it will be found that the migration during the preceding decade will have been from the city to the country, at least in a large part of the United States. We are not so sure that the census of 1910 might not already reveal a tendency of this kind, provided the concentration of immigration in cities does not entirely obscure the question. Mr. Hill should recognize the motor car not as a disadvantage to the agriculturist, but as one of the most potent factors coöperating with his own splendid efforts and accomplishments toward agricultural development. In spite of this somewhat minor criticism, we cannot but feel that it will be a good thing if Mr. Hill's address were published in pamphlet form as a text-book in the schools—Hayden Eames, General Manager Studebaker Automobile Co.

HOOSIER SERVICE SATISFACTORY

After a demonstration of 1 year, the government has given instructions to Robert Bryson, postmaster at Indianapolis, to keep motor cars in permanent use in that city for the collection and delivery of mail. At the present time four cars are being used, being leased at a specified sum each month, the company furnishing the drivers and maintaining the cars. In the budget of expenditures for the city of Indianapolis for next year is included an appropriation of $2,500 for a motor patrol wagon, which will make three such vehicles in use by the police department. The budget also allows the board of public works $1,000 for the maintenance of its White steamer and the police department, $3,600 for the maintenance of the four cars now used by the department for city business.

GOOD ROADS BOOM ON

Cleveland, O.—Editor Motor Age—Millions for good roads—that is the slogan in the west and middle west, as I found out in my recent 2-months trip. One county alone—in California—has appropriated over a million dollars for improved roads. The cities are building boulevards. Seattle is spending a mint of money cutting down her hills. Improvement is going on everywhere. It's a prophecy wise dealers are heeding. Modern, substantial garages are being built in all centers. Foresighted business men are rushing to secure agencies in cities the good roads movement is opening up. Next year is going to be the biggest, by a wide margin, in the history of the trade. I find the demand for electrics growing by leaps and bounds. Years of steady growth have been followed by a sudden popular demand. I found electrics in many places where—a year ago—not one was in use. City men, everywhere, are realizing that the electric has a field of its own that in no way interferes with that of the gasoline car. The electric is now recognized as the very thing for family use. Women find it ideal for all their purposes, while men accept it for business use. The most interesting development of 1909 is the introduction of the gasoline motor car as an every-day factor of farm life in the middle west. Farmers out there are driving about their fields, making neighborhood calls and traveling to and from town to the tune of the chugging gasoline engine just as they used to do to the click of the horse's hoofs. The return of prosperity with the immense crop yield of 1909, and the opening up of new fields for trade by the good roads movement, is going to make 1910 a bonanza year for motor cars.—O. B. Henderson, Baker Motor Vehicle Co.

HAS NOT COMMITTED ITSELF

Indianapolis, Ind.—Editor Motor Age—It has been reported in trade papers that we never will again participate in track races or road races. We never have made a statement of this kind. We are not saying that we will take part in race events and we are not saying that we will not take part in them.—Nordyke & Marmon Co.

From the Four Winds

Growing Club—The Portland Automobile Club of Portland, Ore., now has a membership of 300.

New Guide Post—B. H. Cooley, of Campbellsport, Wis., has started the manufacture of an improved steel guidepost for country crossroads. It consists of a 2-inch cast iron pipe, with a specially-designed cap with four slots for signs. These are adjustable and interchangeable.

Will Protect Themselves—The Portland Chauffeurs' Association has recently been formed in Portland, Ore., the object of which is to protect the members from imposition from the public, as well as to keep out the riff-raff of the driver's profession who go to Portland and cause trouble for which local drivers are blamed.

Improving Ideal Tour Route—Surveys are now being made of the road from West Torrington, Conn., into Norfolk, a distance of 12 miles, which is along the ideal tour route, and the contracts for this stretch through the most beautiful section of the state will be let shortly. All plank bridges along this road will be replaced with modern concrete structures. Surveys are also being made of the 6-mile road from Winsted to Norfolk.

Beach Road Planned—The Mason county, Wash., commissioners expect to soon start on the construction of a road from Clifton to Union City, a distance of 15 miles along the beach, which will be the connecting link for a direct line from Seattle to Union. With the completion of this road the trip can be made from Seattle to Bremerton, the home of the United States navy yard, and then a drive of about 40 miles across the country lands the motorist at beautiful Hood's canal, which has heretofore been reached by a roundabout route, but which already has become a rendezvous for motorists.

Up Mount Shasta—The Mount Shasta Automobile Ascension Co. of California has begun work on a motor road to the top of this grand peak. At the present time it is working on a stretch between Sisson and Wagon Camp, on the lands of the company, which passes the site of the new summer town of Shasta Heights. From Shasta Heights the road will continue to Horse Camp, so named because it is the highest point attainable on horseback, and from there the trail will be put into such condition as to make the ascent a pleasure compared with the tedious journey which occupies part of 3 days, and which the company will make in 1 day when its plans mature. The road will be a toll road, and a moderate fee will be charged those using it. The grade is moderate and 20 miles an hour can be easily made. The distance from Sisson to the snow line over the company's road is about 15 miles. The giant mountain is situated in Siskiyou county, in the northern part of California, and is 14,444 feet above sea level.

New Roads Planned—The Portland Automobile Club of Portland, Ore., expects to get under way during the coming year several new roads leading to Mt. Hood, Seattle, the beach resorts and to Tilamook.

Will Open New Turnpike—The formal opening of the Berlin turnpike by the Connecticut state highway commissioner has been set for October 15 and a committee of the Automobile Club of Hartford is planning to co-operate with the state highway commissioner in making the affair a rousing one.

Salvation Army the Host—About 100 children of Webster, Mass., were given a motor ride to Webster Gore last Thursday as guests of the Salvation Army, in fifteen cars furnished by the owners in and about Webster. The start was made at 9 o'clock from the Salvation Army headquarters on Main street and an hour before the time set the fifteen cars were filled with the children.

Baltimore Posting Signs—Osborne I. Yellott, counsel for the Automobile Club of Maryland, was appointed by the club as chairman of the committee to act with the Baltimore county commissioners in placing road signs designating the distances between different places and to what town or towns the roads followed will lead, etc. The club has held off from this work for some time following the announcement of the A. A. A. that it would place similar signs throughout the country. The club shortly will publish an up-to-date road map which will give prospective tourists information as to the kind of road and the condition to be followed, which will aid them to select the most direct routes and prove valuable in other respects.

Milwaukee Wants Cars—The Milwaukee common council committees on fire department, health department and water works department have practically decided to recommend the purchase of motor cars for each department. The fire department car, it is provided, must be a four-passenger roadster. The sheriff of Milwaukee county, who already has a touring car for the use of deputies, is asking the county board for an appropriation to purchase a motor ambulance. An interesting dispute has arisen in the Milwaukee council following the purchase of several additional cars for various departments. Alderman E. C. Stern has introduced an ordinance providing that all municipal-owned cars should be tagged. His idea is that each car be designated by signs or panels as to which department it belongs and to let the public know that the car is a city-owned vehicle. Charges had been made that municipal cars are being used for shopping tours of wives of department heads and officials.

Wemme Cup Race Sanctioned—The A. A. A. has given its sanction for the Wemme cup race, to be held in Portland, Ore., during the annual rose carnival in 1910.

Useful in His Business—Richard G. Wagner of Milwaukee, president of the Chippewa Sugar Co., has returned after a 1,000-mile tour of Wisconsin, visiting beet sugar factories and fields. Mr. Wagner says he rode directly into the fields in the car, and besides having a good opportunity to inspect the crop, he covered four times as much ground in 1 day than by horse.

Fair Did Some Good—The Wisconsin state fair, held in Milwaukee from September 13 to 17, showed better, perhaps, than anything, the trend of the times, for hundreds of farmers attended the fair, driving motor cars to and from their homes. Many came as far as 150 miles. While there was no special exhibit of cars at the fair, several enterprising dealers showed their lines and the result was that a good many rural visitors either purchased or went home with a fixed thought of buying.

Danbury Schedules a Meet—Motor events are scheduled as the chief attractions on the opening and closing days of the Danbury, Conn., fair. Tuesday, October 5, the track will be given up to the machines the entire afternoon, with gymkhana sports, parade, and a 3-mile race, owners to drive, open to all types of cars. The races Saturday, October 9, are five in number, and are to be held under the sanction of the American Automobile Association. Alex. S. McLean, 314 Main street, Danbury, Conn., is managing the motor features of the fair. Trophies valued at $1,500 are to be awarded the winners.

Block a Good Guesser—B. E. Block, of Norristown, Pa., who captured the honors in last week's Premier reliability run from Philadelphia to Cape May, made a remarkably close calculation when he drove his car over the 96-mile route in just 16 seconds shy of the official sealed time. The latter figures were 4 hours 57 minutes 29 seconds, and Block's time was 4:57:45. The scheme of offering auxiliary prizes to residents along the route who guessed nearest to the official time and named the winning car worked like a charm. No fewer than 2,456 guesses were received by the committee and twenty cash prizes were distributed to as many good guessers, several of whom were of the gentler sex. James Martin, of Waterford, N. J., was the only one to guess the winning number

–29—and the remainder of the prizes were distributed on the time basis, Elizabeth McCarthy leading with a guess but 10 seconds wide of the official mark.

Chauffeurs Seek a Charter—The Chauffeurs' Protective Union of Pittsburg has applied for a charter, which is the first move that the drivers of motor cars have made to protect themselves in western Pennsylvania.

Prepare for Big Parade—Plans have been completed by the St. Louis motor centennial committee for the parade to be held October 9. It is assured that not fewer than 1,000 cars of various descriptions will be in line. About one-third of the 1,000 cars will be decorated. The Motor Accessories Association has decided to purchase a cup to be given for the best decorated commercial vehicle. Other cups will be given for decorated cars in other divisions.

Will Race at Dallas—The program for the races at the coming state fair at Dallas, Tex., has been completed. The races will be held on October 28, 29 and 30. The feature event for Saturday, October 29, will be a 100-mile race for the state championship, the prizes for which are $500 for first and $300 for second. The races will be held under the auspices of the Dallas Automobile Dealers' Association, and will be run under the rules of the American Automobile Association.

Ride for the Aged—From a chance remark dropped by an aged man, standing in front of a Columbus, O., store recently, the officials of the Columbus Automobile Club are considering the question of having an old people's day, similar to orphans' day. The aged man said: "I am now more that 70 years of age and have never ridden in a motor car." Upon inquiry it was ascertained that a large number of the old folks of Columbus who have reached the age of threescore and ten never have ridden in a motor car. The movement was started by W. E. Heskett and is meeting with enthusiasm by the members of the club, many of whom have offered the use of their cars.

Meet at Santa Rosa—For the third year in succession a 2-day race meet is to be given at the Santa Rosa, Cal., race track. The affair this year will be under the management of the Santa Rosa Automobile Association, which is an offshoot of the Sonoma County Automobile Association, heretofore the conductor of the meets. The dates set are Saturday and Sunday, September 25 and 26. There are to be five or six races each day. The people of Sonoma county are very much interested in motor racing, and as a consequence the coming meet will be the first held in California on a banked track. There has been no difficulty in collecting several thousand dollars for this work and the improvement of the track in other respects. The majority of the entries for the race meet will come frm San Francisco, where the interests of the Santa Rosa association are being looked after by W. R. Johnston, secretary of the San Francisco Motor Club.

Red Men in Races—Motor races between prominent Red Men of Worcester, Mass., and Spencer were the features of the field day of the Worcester, Spencer, East Brookfield, West Brookfield and Ware tribes at Myrick park, Spencer, on Saturday. Four races were held. The races attracted a great deal of attention. The winners of the four events have not been decided as yet.

Another Motor Carnival—The Automobile Club of Delaware County, Pa., one of the most active organizations composing the Pennsylvania Motor Federation, is arranging the details of a motor carnival to be held some time during the month of October. An exhibition of 1910 models and a series of competitive gymkhana stunts will form a portion of the program. No admission fees will be charged.

After Delinquents—At a recent meeting of the board of directors of the Motor Accessories Association of St. Louis Secretary Benoist was instructed to take active steps looking to the elimination of "deadbeats" in motor circles. The accessory dealers long have been the victims of men who run up bills for tires, lamps and other supplies and who, when asked for cash, transfer their patronage to other houses. Under the new procedure no man is to be granted credit by any accessory house until the secretary of the association is consulted by telephone. If he says the applicant for credit is in the list of "deadbeats" the demand will be promptly turned down. Secretary Benoist and President A. N. Stanley confer daily and a careful list of the "bad pay" fellows is kept.

Roads Closed—Part of the main road between Hamburg and Gowanda, N. Y., and a section of the river road near Buffalo are closed while repairs are being made. Further information has been given out that the roads of Grand Island, near Buffalo, will be improved at a cost of $5,000.

Home-Coming Week Card—Invitations are being sent broadcast by the motorists of South Bend, asking drivers and owners of other cities to participate in the home-coming week at South Bend, Ind., beginning October 3. One of the principal features is to be a motor car floral parade on the afternoon of October 7 and a business men's car parade on the afternoon of October 5. A large delegation probably will go from Indianapolis.

Another New Club—The Fremont County Automobile Association is a recent organization of St. Anthony, Idaho, the officers of the association being E. G. Bowerman, chairman; R. J. Comstock, secretary; George E. Hill, Ornson Waldrum, L. S. Borrows, W. D. Parker and George Swartz, directors. The association was organized primarily to secure the benefits to be derived in improving roads. Fremont county now boasts of upwards of thirty cars.

Warns of Speed Traps—President Capen of the St. Louis Automobile Club has employed four motor cyclists to patrol the roads in St. Louis county, Missouri, and warn motorists against the numerous speed traps set by the county authorities to snare drivers of motor cars. The motor cyclists employed by the club were on duty for the first time last Sunday, and it is believed their warning of the whereabouts of the hidden officers saved many persons from being arrested.

St. Louis Wants Road Laws—Directors of the Automobile Manufacturers and Dealers' Association of St. Louis have named a committee to draft an ordinance to control the street traffic of the city. It is the intention of the association to make the ordinance a model one. The directors have secured from many of the large cities of the country copies of their street regulations. The main purpose of the proposed new law is to provide against accidents to pedestrians and vehicles. All vehicles will be required to turn corners carefully, to keep to the right and have lights at night. Slow-moving trucks and wagons will be compelled to keep near the curb, and the center of the streets will thus be left open for faster vehicles, such as motor cars, buggies and carriages. Mayor Kreisman is an enthusiastic motorist and it is know that he will urge upon the assembly the necessity of such a law as was outlined at the meeting.

Coming Motor Events

SEPTEMBER

21-23—Second annual good roads convention at Cleveland, O.
22-29—Munsey tour from Washington, D. C., to Boston and return.
24-28—Houston, Tex., 5-day endurance run.
24-25—24-hour track race at Milwaukee.
24-25—24-hour track race at Brighton Beach, N. Y.
29—Motor Contest Association's road carnival at Riverhead, L. I.

OCTOBER

8—Duff trophy endurance run, Nebraska City, Neb., to Fall City.
9—Second annual Fairmount park road race, Philadelphia.
8-9—Reliability run of Louisville Automobile Club, Louisville, Ky.
8-9—Track races at Sedalia, Mo.
12-15—1,000-mile reliability run of Chicago Motor Club.
16-21—Show at state fair, Dallas, Tex.
23—Road races of Automobile Club of California, San Francisco.
27-29—Track meet at Vicksburg, Miss.
28-30—3-day track meet at Dallas, Tex.
30—Vanderbilt cup race.

NOVEMBER

6-13—National show at Atlanta, Ga.
9—Opening meet at Atlanta speedway.
22—Start of flag-to-flag reliability, Denver to City of Mexico.

DECEMBER

28-29—Philadelphia mid-winter reliability run.
31—Opening of Grand Central palace show, New York.

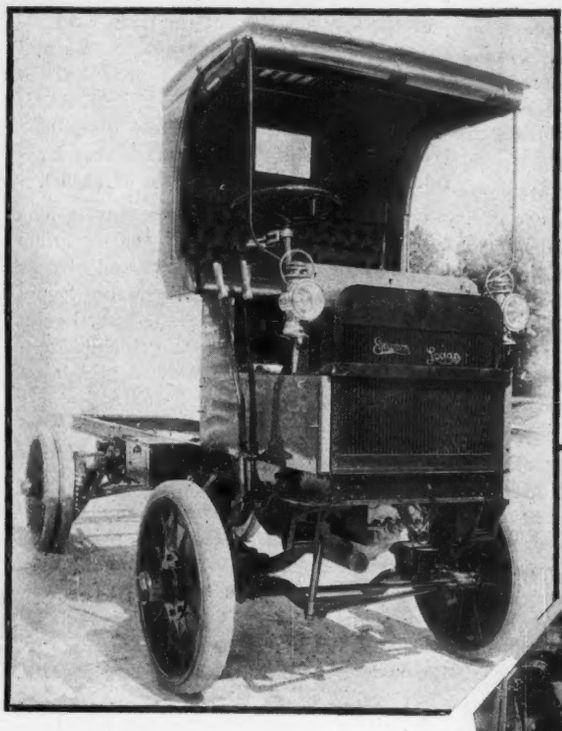
JANUARY

7—Closing of Grand Central palace show, New York.
8-15—Madison Square garden show, New York.

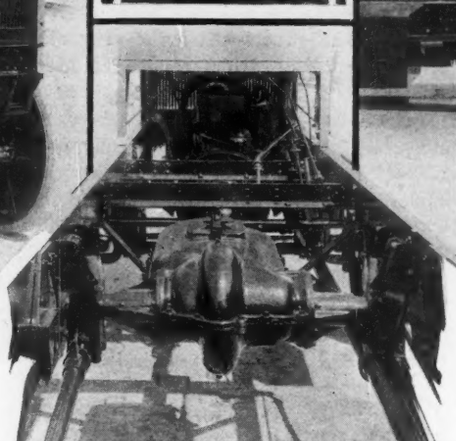
FEBRUARY

5-12—N. A. A. M. show, Chicago Coliseum.

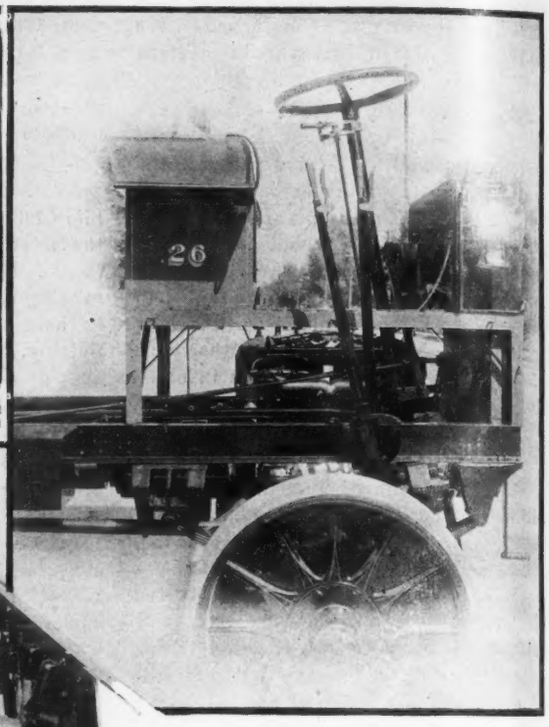
The Realm of the Commercial Car



GRAMM-LOGAN 3-TON TRUCK

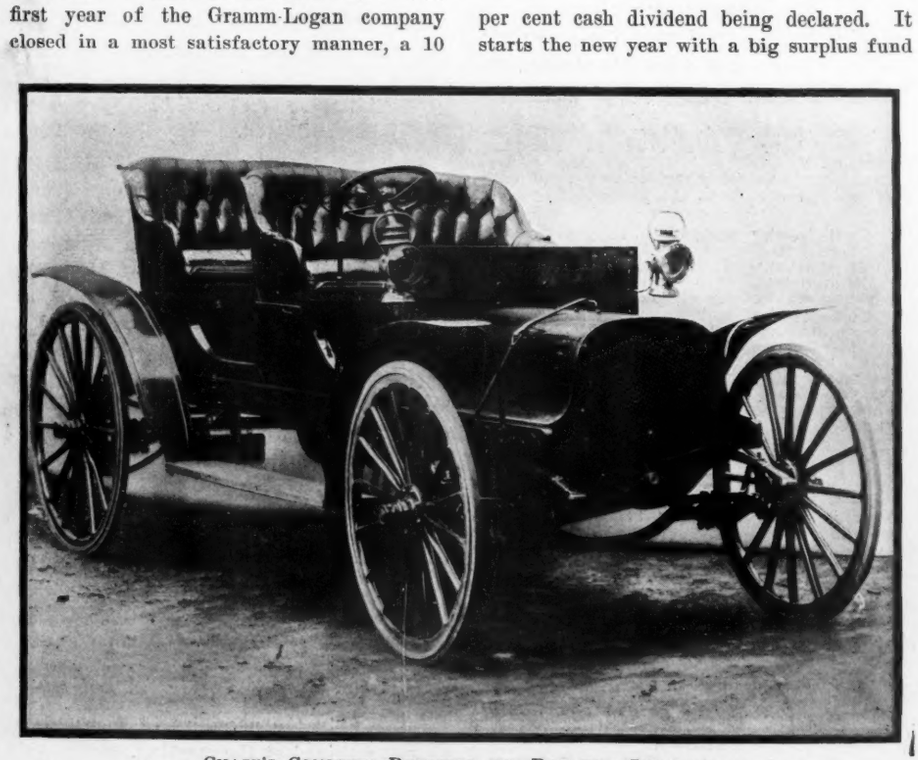


GRAMM-LOGAN CHASSIS



GRAMM-LOGAN POWER PLANT

FOR 1910 the Gramm-Logan Motor Car Co., of Bowling Green, O., has a 2-ton truck model and also a 3-ton one in which there have been some slight improvements made. The company, however, is well satisfied with its product and believes it does not have to alter its models much. The first year of the Gramm-Logan company closed in a most satisfactory manner, a 10 per cent cash dividend being declared. It starts the new year with a big surplus fund and having charged off all its overhead and depreciation accounts. On the first of the month it will put on a double shift. At the recent annual meeting the capitalization was increased from $100,000 to $300,000, all of which is to be paid in. The following officers were elected: A. L. White, president; B. A. Gramm, vice-president and general manager; F. E. Lamb, secretary; J. B. Wilson, treasurer; W. T. Agerter, M. Cokely, R. W. McMahon, W. M. Tuller and J. E. Parks, directors.

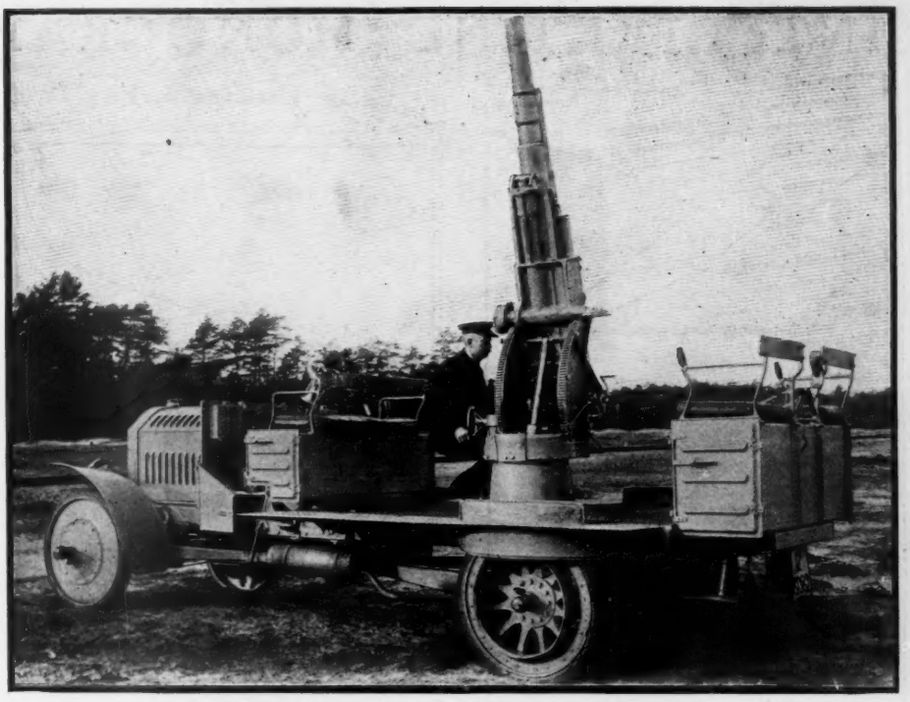


CHASE'S COMBINED BUSINESS AND PLEASURE RUNABOUT

NEW USE FOR MOTOR CARS

Now that aeroplanes and dirigible balloons are becoming so numerous and threaten to become factors in military operations, the inventors are busily engaged in devising means whereby the air attacks may be repelled. In this country Dr. S. W. McLean of Cleveland, O., has devised a gun with which he claims he can puncture an airship 1½ miles high. This gun recently was given a test, being mounted on a Baker electric truck. Dr. McLean's gun fires 200 shots a minute. Germany perhaps is the foremost, however, in preparing for aerial attack. At the beginning of this year special machine guns were constructed for attacking aviators and also some types of armored motor cars. One is fitted with two wheels as a portion of a horse-drawn gun, the other is mounted on a motor car chassis. The gun is rather long, which favors a high speed of the projectile. The longest shooting distance horizontally is 9,100 meters,

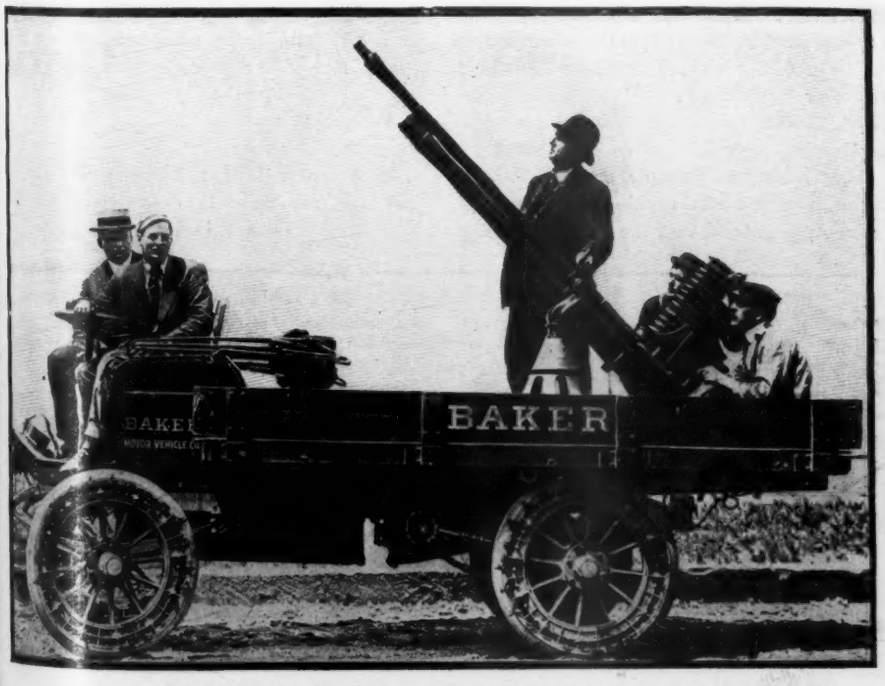
the greatest height reached 6,300 meters. A 50-horsepower engine is mounted under the hood. All four wheels are propelled in order to better overcome steep grades and uneven ground. When a shot is fired struts are placed under the platform to relieve the wheels and axles. Both guns are provided with ingenious attachments. The gun is mounted on a cast steel pedestal and can be completely turned round and also moved up and down. On the platform seats for five men and room for eighty-two cartridges are provided.



AEROPLANE WRECKER BROUGHT OUT BY GERMANS

CHAUFFEURS WIN A STRIKE

Twice within less than a week the whole taxicab business of Brussels, Belgium, was tied up by a strike of chauffeurs. The men who drive the cars won out and the company suffered a big loss, besides being fined by the authorities for failing to comply with its agreement, namely, having its cabs run every day. A matter of 25 francs or $5 was the original cause for the strike. Many fines have been imposed upon taxicab drivers recently and a large number of accidents have occurred. The company claimed that since the first of the year and with 145 cabs in operation there have been 215 accidents. The officials stated that a large percentage of these accidents was due just to the carelessness of the drivers. In order to try and reduce the number of accidents the general manager issued an order making the drivers responsible up to within $5 of the damages. This regulation did not meet the approval of the chauffeurs, who sent a delegation to the general manager asking him to withdraw this new rule. Instead of doing so he threatened to discharge every one who made a protest. Whereupon several hundred drivers walked out. At first the officials refused to consider peace overtures, but after a day of no business, which meant at least a loss of $1,600 to the company, the general manager agreed to talk over matters with a delegation of strikers. Besides the matter of 25 francs, other grievances were taken up and after the intenvention of various city authorities, and as the chauffeurs would not consider for a moment the $5 rule being maintained, both sides retired without an agreement being reached. Another day thus passed and this time officials from not only the city of Brussels but of the suburbs took a hand in the matter and called the attention of the company to the fact that it was under obligations to maintain its service as per agreement within the city and suburbs and that for each day of no service there would be imposed a big fine. On the third day the strike came to an end, the men winning on nearly every point. A new agreement was made whereby it was provided that in cases of accidents due to the driver, the latter would pay 25 francs and no more, the amount being retained from his salary at the rate of 10 francs per fortnight. Furthermore, the drivers hereafter will be allowed a lawyer to represent them in case of a damage suit and thus present their side. Heretofore the driver did not have this privilege. The 100 francs bond which each driver when entering the service of the company had to furnish will bear 3 per cent interest. Heretofore no interest was paid the men.



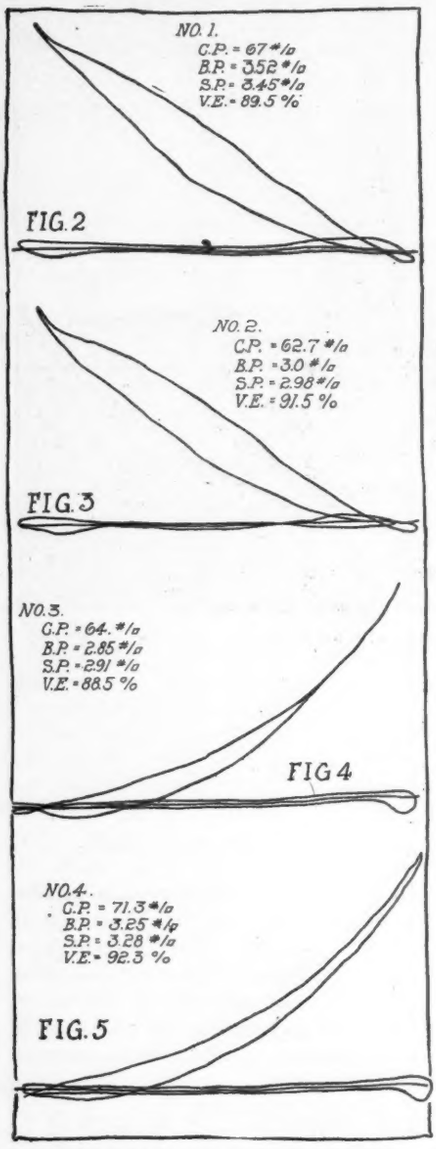
DR. MCLEAN'S GUN DESIGNED TO REPEL AERIAL ATTACK

CHASE COMBINATION WAGON

Calls from agents for a combination pleasure and business wagon constructed along standard lines has induced the Chase Motor Truck Co. to bring out the model F surrey. The chassis contains the usual three-cylinder, two cycle, air-cooled Chase motor, directly connected to the enclosed planetary gear running in oil, drive to the rear wheels being through side chains. The wheels are 40 inches in diameter and shod with 1⅝-inch Firestone side wire solid rubber tires. The wheel bearings are ball bearing. The transmission is with ball and roller bearings. The main frame is of wood reinforced with angle iron. The steering gear is of the worm and nut irreversible type. This car is geared to the maximum speed of from 20 to 25 miles per hour. This model is designed for use as a runabout or four passenger surrey as desired. The rear seat is detachable and when removed leaves a large space behind the front seat which allows for the carrying of miscellaneous articles of any kind. A folding canopy top can be had when specified.

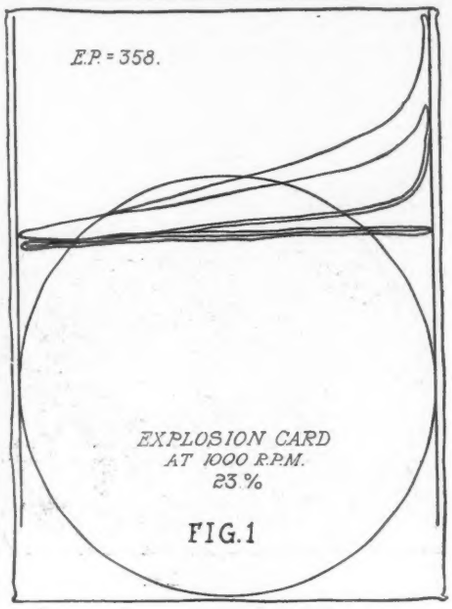
INTERPRETING MONOGRAPH READINGS

By Thomas J. Fay



MANOGRAPH DIAGRAMS OF FOUR CYLINDERS OF A MOTOR AT 334 REVOLUTIONS PER MINUTE

GLANCING over a large number of motor tests made in the laboratory of the E. R. Thomas Motor Co. at Buffalo, N. Y., leads to but one conclusion, namely: it is impossible to tell how good a motor is doing without making a test, and even the dynamometer test fails to disclose all there is to be known. When a manometer is properly applied, then the test begins to show things and the remedy is at once suggested.



SAMPLE MANOGRAPH DIAGRAM

At the plant in question the electric dynamometer is equipped with a manometer and a very delicate instrument called a phenendoscope, the function of which latter instrument is to enable the operator to listen for knocks, however slight they may be, so that when the motor undergoing test is properly running, it will be free from internal mechanical disorders, and the torque cards, when taken by means of the electric dynamometer, together with the indicator cards taken by means of the manometer, enables the operator to judge of the performance of the motor, and if it is not up to the required standard, remedial action may be intelligently applied, rather with the expectation that good will follow to the desired extent.

Fig. 1 shows a sample manograph card taken from a motor running at 1,000 revolutions per minute, and the card shows that the explosion pressure is 358 pounds per square inch. The compression in this motor was found to be 23 per cent, and with this information at hand it is at once possible to judge if the passageways and the remaining conditions were favorable, since if the explosion pressure were to be low, this, in view of the known compression, would be a sign of undue losses.

What a Series of Cards Show

The best way to illustrate the value of the manograph in actual service is to exhibit a series of cards taken from a motor in the process of tuning the same up for service, and with this idea uppermost, it will be necessary for the reader to remember that:

EP=explosion pressure
CP=compression pressure
BP=back pressure
SP=suction pressure
VE=volumetric efficiency

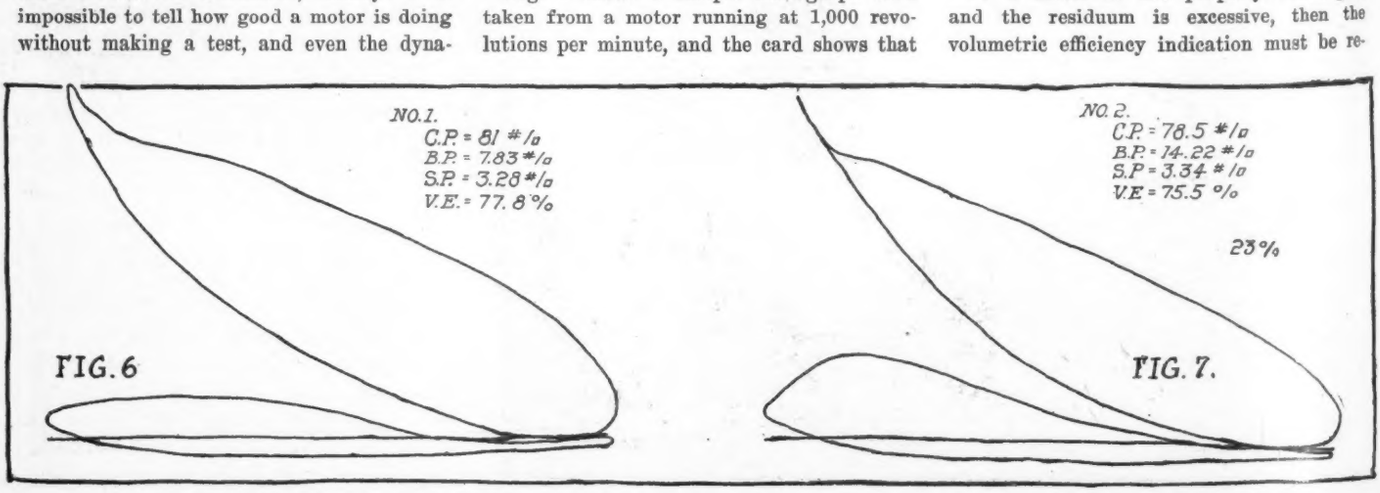
If the compression pressure is high, it is a good indication of tight rings and points, and that the intake is of sufficient area, which includes, of course, the action of the depression chamber in the carbureter.

The back pressure, if it is excessive, shows that the muffler is restricted, hence offering insufficient passageway for the exhaust, and it may be that the exhaust manifold lacks accommodation for some reason, and that the exhaust pipe leading from the manifold to the muffler is too small in diameter in view of the length.

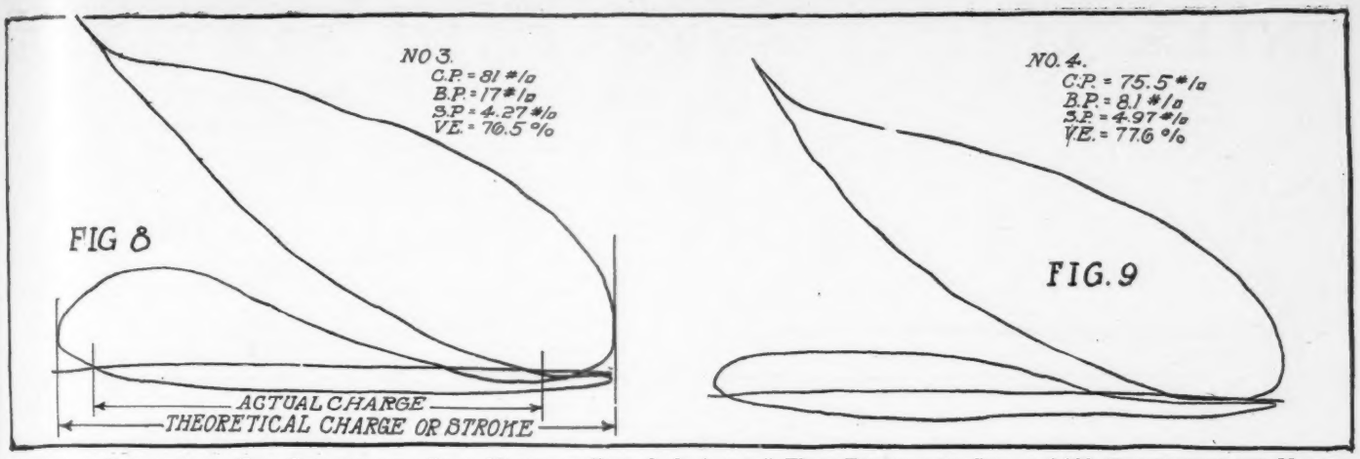
Suction pressure, if it is high, indicates an excess of depression in the carbureter, insufficient valve opening, or restricted passageways; this trouble will show on the curve of compression also, as before stated.

Volumetric efficiency, if it is high, indicates that the suction pressure is not great, and that the volume of mixture inhaled into the cylinder is maximum. Since the power of a motor depends upon the weight of fuel—among the important considerations—the volumetric efficiency is a direct indication of power.

If a motor is not properly scavenged, and the residuum is excessive, then the volumetric efficiency indication must be re-



MANOGRAPH DIAGRAMS OF SAME MOTOR AS FIGS. 2, 3, 4 AND 5 WERE TAKEN FROM CUT AT 1,000 REVOLUTIONS PER MINUTE



MANOGRAPH DIAGRAMS OF TWO CYLINDERS OF SAME MOTOR AS FIGS. 2, 3, 4 AND 5 WERE TAKEN FROM CUT AT 1,000 REVOLUTIONS PER MINUTE

garded as of reduced importance, since the influence of the remaining spent products of combustion will fatten the volumetric readings. This latter consideration will be easily interpreted since the back pressure will be high if the spent products do not escape.

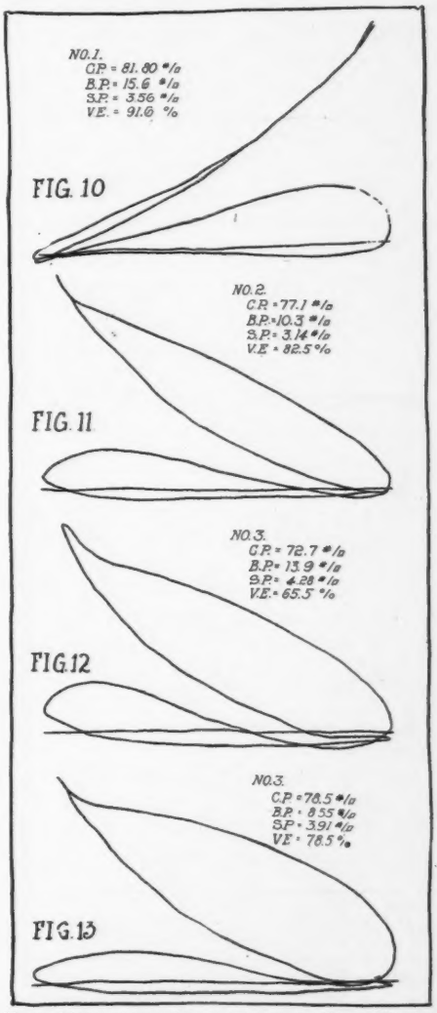
Referring to the series of cards: Figs. 2, 3, 4 and 5 were taken with the motor turning at 334 revolutions per minute, and the several cards were taken from four of the respective cylinders of the motor, thus showing the extent of uniformity of compression, and the results of differences in compression. Cylinder No. 4 had the highest compression, it being 71.3 pounds per square inch, and cylinder No. 2 had the lowest compression, it being 62.7 pounds per square inch. Considering these two cylinders, it will be observed that the back pressure was highest in the cylinder having the highest compression, and this is just what should transpire, since all cylinders discharge through openings of the same size to a common muffler, and the higher the compression the greater will be the volume of the spent products, which will have to discharge at a given time. Glancing at the suction pressure in these two cylinders, it will be observed that the cylinder with the highest compression also has the highest suction pressure, which is an indication that the volume of gas entering was greater, thus accounting for the increased depression. In this, there may have been some indication of lack of equality of the branches of the intake manifold. The volumetric efficiency was highest in the cylinder having the highest compression; highest suction pressure and highest back pressure; this is as it should be, but it would also be an advantage were it possible to maintain the high volumetric efficiency, and lower the back pressure, as well as the suction pressure, for then the pumping losses would not detract so much from the power of the motor.

Effect at Higher Speeds Noted

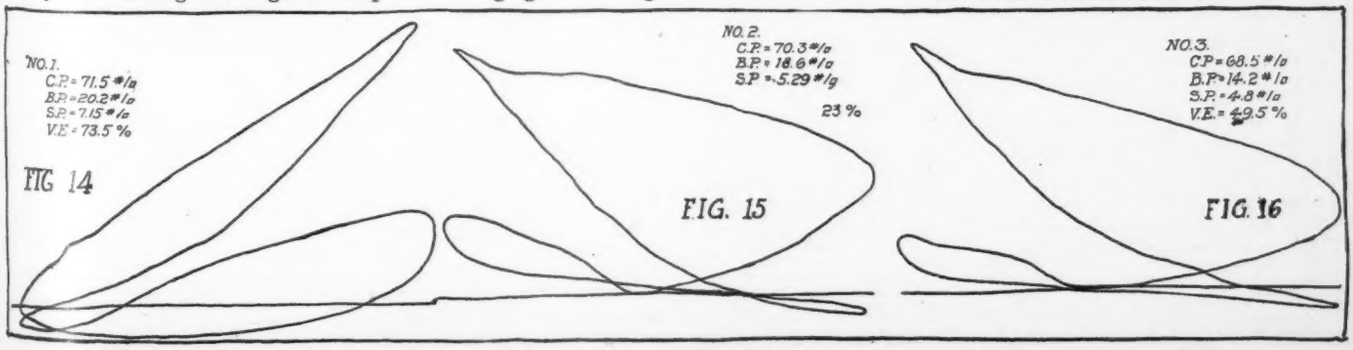
Figs. 6, 7, 8 and 9 were taken from the same motor when the speed was 1,000 revolutions per minute, and the compression pressure was then found to be the same in cylinders 1 and 3, somewhat lower in No. 2, and lowest in 4. On the whole, the volumetric efficiency decreased under the influence of increasing speed, and back pressure went up considerably. The suction pressure was augmented, and the indication is that the pumping losses were materially increased because of the higher speed, which allowed a reduced time for the gases to enter and escape. This is not to say that the results were not good, but it does show that the power delivered was not in proportion to speed. Since some of the values shifted relatively, it is well to point out that one set of cards, taken at some one speed, affords unreliable information, and it is by taking cards at different speeds that the carbureter may be checked for performance.

Performance at 1,000 R. P. M.

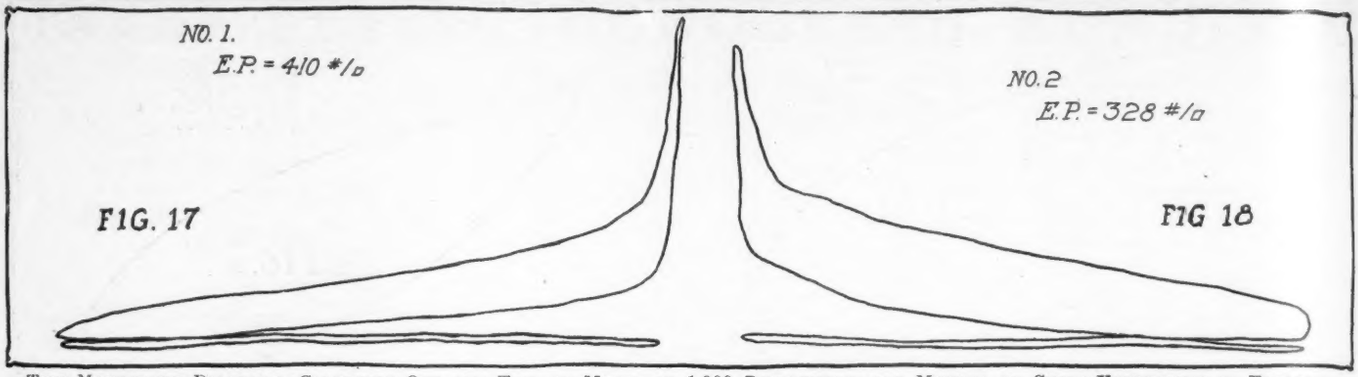
A second set of cards, taken at the same speed, 1,000 revolutions per minute, as shown in Figs. 10, 11, 12 and 13, show quite different results, thus indicating that changing the timing and the mixture ma-



FOUR MANOGRAPH DIAGRAMS FROM SAME MOTOR AS FIGS. 2, 3, 4, 5, 6, 7, 8 AND 9 AT 1,000 REVOLUTIONS PER MINUTE.



MANOGRAPH DIAGRAMS OF SAME MOTOR AS FIGS. 2, 3, 4 AND 5 WERE TAKEN FROM CUT AT 1,600 REVOLUTIONS PER MINUTE



TWO MANOGRAPH DIAGRAMS, CYLINDERS ONE AND TWO, OF MOTOR AT 1,000 REVOLUTIONS PER MINUTE, TO SHOW UNIFORMITY OF EXPLOSION

terially effects the results. Cylinder No. 1 in Fig. 10 shows considerably more back pressure than cylinder No. 1 in Fig 6. The volumetric efficiency of cylinder No. 1, Fig. 10, is very much higher than the same efficiency in cylinder No. 1, Fig. 6. Cylinder No. 3, Fig. 12, shows a marked falling off in the volumetric efficiency, and in this case the compression pressure is lower, whereas the back pressure holds to a rather high value, relatively, while the suction pressure holds to a higher value than all the other cylinders.

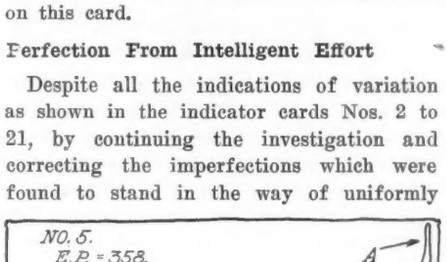
Figs. 14, 15 and 16 represent three of the four cylinders of the same motor at a speed of 1,600 revolutions of the crankshaft. At this high speed the compression pressure varies considerably, and the volumetric efficiency falls to slightly below 50 per cent in cylinder No. 3, as shown in Fig. 16. Back pressure is very high in cylinder No. 1, as shown in Fig. 14, and in this cylinder the suction pressure is also a maximum, so that this cylinder suffered from excessive pumping losses. This set of cards plainly shows that the difficulties attending high speed interfere materially with the power delivery, and it is only by exhaustively investigating the situation that good corrective measures may be applied.

Figs. 17, 18, 19 and 20 are offered from the same motor, taken at a crankshaft speed of 1,000 revolutions per minute, to show uniformity of explosion pressure among the four cylinders, and although the results are not perfect, they are, nevertheless, good, since the explosion pressure is not low in any one of the cylinders, although Fig. 17 shows very fine results. The goal would be to bring on greater uniformity and, if possible, attain the result realized in Fig. 17.

Fig. 21, taken from the same motor, at 1,000 revolutions per minute of the crankshaft, shows results by way of explosion pressures, in which A shows the highest explosion pressure due to good timing and mixture, whereas B shows the ill result of a less fortunate condition. The difference between success and failure lies pictured on this card.

Perfection From Intelligent Effort

Despite all the indications of variation as shown in the indicator cards Nos. 2 to 21, by continuing the investigation and correcting the imperfections which were found to stand in the way of uniformly good results, the final performance, as respects volumetric efficiency, were realized as shown in Fig. 22, which is a curve charted from a series of tests and, as the chart discloses, the volumetric efficiency at 1,000 revolutions per minute of the crankshaft was 77.3 per cent, increasing to 80.5 per cent at the lowest speed, and falling off to 61.5 per cent at a speed of 1,600 revolutions per minute. These results are far and beyond any possible performance in a motor of the same size if it is not properly designed, or if the tuning up process is done by rule of thumb.



MANOGRAPH DIAGRAM ILLUSTRATING GOOD AND BAD CONDITIONS OF MECHANICAL EFFICIENCY

The Tuning Up Process

Just why trouble might be experienced at the higher range of speed may not be quite clear to the average reader, and to show one of the sources of trouble the chart, Fig. 23, is offered. In this chart it will be observed that the power increases with speed much faster at the higher level with a No. 7 needle adjustment in the carbureter than it does with a No. 5 needle adjustment. Both adjustments perform nearly the same at all speeds below 1,100 revolutions per minute of the crankshaft, so that this carbureter influence in this case is distinctly a high speed proposition. The power afforded with the No. 7 needle adjustment in the carbureter did not begin to drop until the speed reached 1,750 revolutions per minute. Although the power afforded with this set of carbureter adjust-

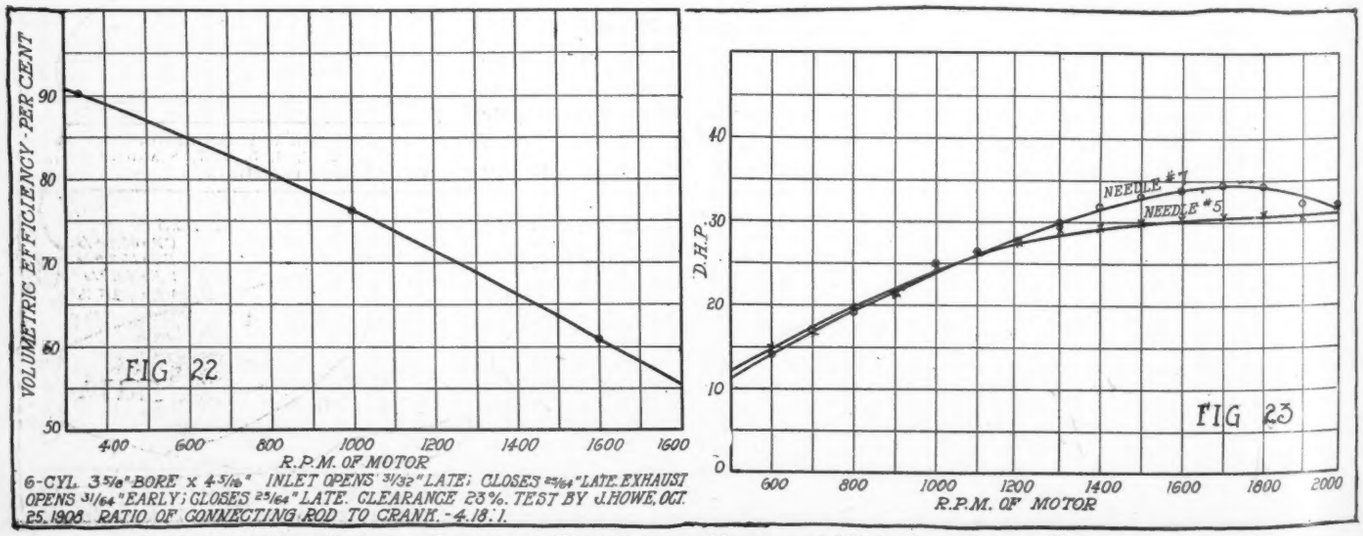
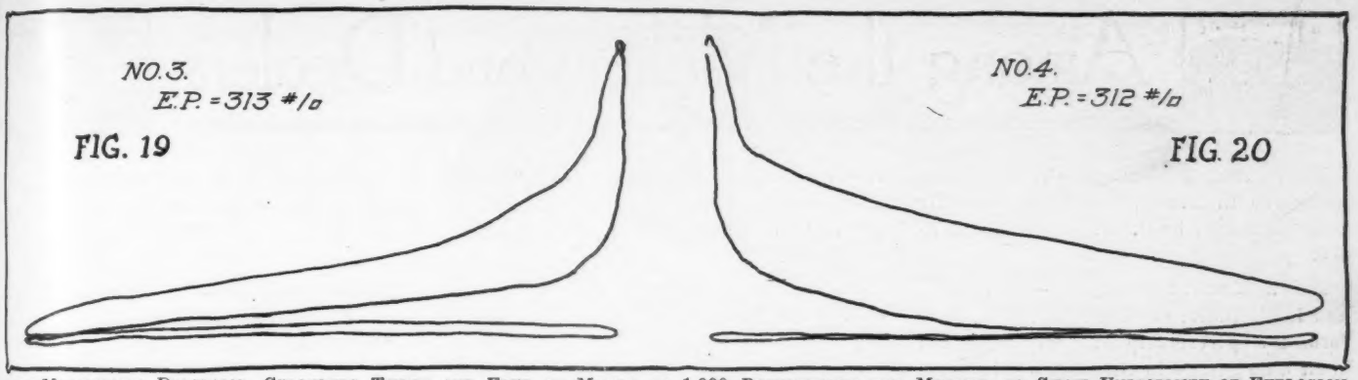


CHART SHOWING VOLUMETRIC EFFICIENCY IN MOTOR AT 1,000 REVOLUTIONS PER MINUTE



TWO MANOGRAPH DIAGRAMS, CYLINDERS THREE AND FOUR OF MOTOR AT 1,000 REVOLUTIONS PER MINUTE, TO SHOW UNIFORMITY OF EXPLOSION

ments illustrates the point to be made, let it not be understood that the limit was reached; it was simply the limit with this carbureter.

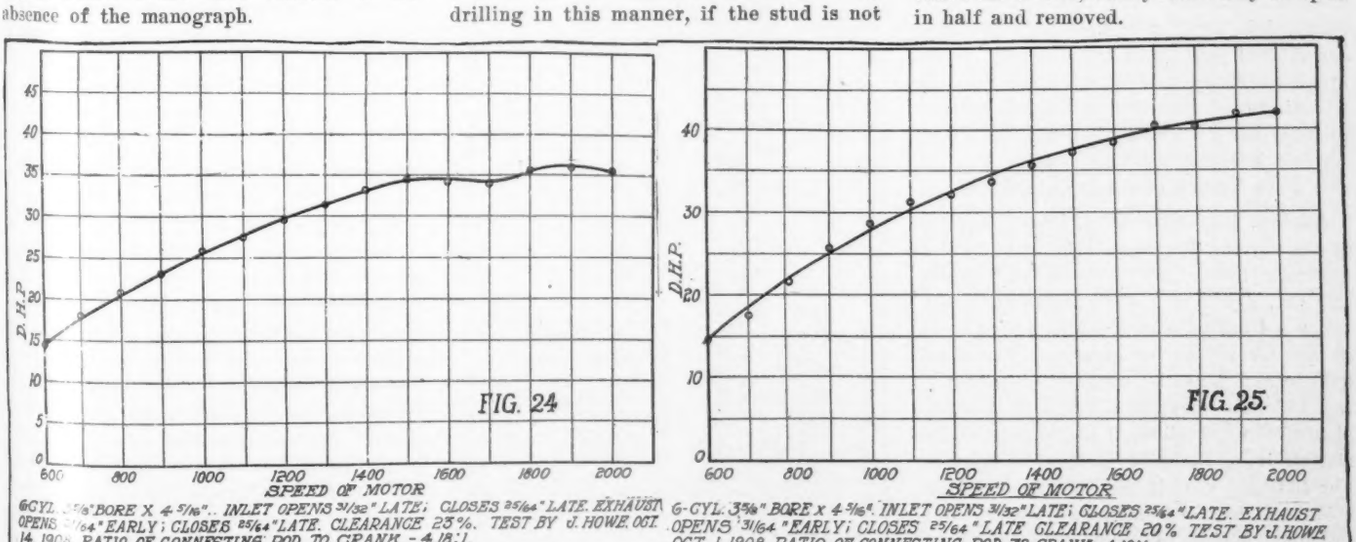
Fig. 24 shows quite another performance, due to the use of another type of carbureter, hot-water jacketed, in which the curve of power undulated between 1,400 and 1,800 revolutions per minute, but the actual power delivered was higher than that with the carbureter used in this test, shown in Fig. 23.

Fig. 25 illustrates the performance of the same motor after the carbureter question received a considerable amount of attention; the power increased continuously up to 2,000 revolutions per minute of the crankshaft; the irregularities were eliminated, and the situation began to assume proportions in accord with the designer's expectations.

Even after doing all the work as herein indicated with a view to eliminating all carbureter, timing and muffler troubles, there still remained the question of cooling, which, after proper treatment, as indicated by the manograph cards, resulted in an increase in power and added to the stability of the power plant performances. This phase of the problem, however, will be taken up as a separate matter at the propitious time. In conclusion, it may not be out of place to state that few of these improvements would have resulted in the absence of the manograph.

Removing Broken Studs

As there are several ways of removing a broken stud it is difficult to say which method is the best. However, in any case, considering that the stud has been broken off in such a manner that it is impossible to get a hold of it with a pair of pliers, a hole must be drilled axially into it. Now in order to get the hole exactly in the center it is advisable to trim off any jagged protuberances from the exposed surface with a chisel and make it as flat as possible. This is to facilitate starting the hole in the center. It also is practicable, after marking the center with a center punch, to make the hole with a very small drill first, say $\frac{1}{16}$ to $\frac{1}{8}$-inch in diameter, according to the size of the stud; for whereas it is a comparatively simple matter to drill a hole directly in the center with a small drill, it is sometimes quite difficult to do so with a larger one; and by drilling the smaller hole it will serve as a guide for the drill of a larger diameter. Considering that it is required to remove a ½-inch stud, first employ a $\frac{1}{16}$-inch drill, then follow with one about $\frac{5}{16}$-inch diameter. If it is possible to use a drill press on the job the $\frac{5}{16}$-inch drill should be of the flat-nosed type with its cutting edges ground in the reverse direction, so that in drilling the hole it must be turned anti-clockwise. By drilling in this manner, if the stud is not pinned the chances are that it will unscrew and come out before the drill has made a dozen revolutions. Before attempting to remove a stud it always is well to look for pins. A mechanic should, in securing a stud with a pin, allow the end of it to protrude, but as it is comparatively easy to cut off the end of a pin and file it flush with the surface, this often is done to improve the appearance of the job. Unless the part is closely scrutinized the pin is liable to be overlooked and much trouble encountered in a vain attempt to remove the broken portion of the stud. After having drilled to about ⅜-inch depth, and no pin is employed to hold the stud in place, it generally can be removed with a square or three-cornered file or reamer, with a tap of a trifle larger size designed to cut a left-hand thread, or by slotting it with a small diamond point or cape chisel and then inserting a screw driver or the wrench from a lathe-chuck if one of the required size is at hand. If the stud still defies the above methods make the hole drilled axially into it so large as to just clear the thread by about 1/32 of an inch. This will leave the remaining portion in the form of a cylinder with very thin walls. If two narrow slots are now made opposite each other down the inner walls of this cylindrical portion just deep enough to touch the thread, the cylinder may be split in half and removed.


D.H.P.
SPEED OF MOTOR
FIG. 24
FIG. 25.
6-CYL. 3⅝" BORE X 4 5/16". INLET OPENS 31/32" LATE; CLOSES 25/64" LATE. EXHAUST OPENS 31/64" EARLY; CLOSES 25/64" LATE. CLEARANCE 25%. TEST BY J. HOWE. OCT. 14. 1908. RATIO OF CONNECTING ROD TO CRANK. - 4.18:1.
6-CYL. 3⅝" BORE x 4 5/16". INLET OPENS 31/32" LATE; CLOSES 25/64" LATE. EXHAUST OPENS 31/64" EARLY; CLOSES 25/64" LATE CLEARANCE 20% TEST BY J. HOWE OCT. 1. 1908. RATIO OF CONNECTING ROD TO CRANK. - 4.18:1.

CHARTS SHOWING VOLUMETRIC EFFICIENCY WITH DIFFERENT CARBURETER ADJUSTMENTS AND CARBURETER CONDITIONS

Among the Makers and Dealers

Buys Seattle Garage—The Eureka garage on Broadway, Seattle, has recently been purchased by J. W. Hughes for $37,500.

Has a Place in Green Bay—Carl Jones and Louis Indra, of Green Bay, Wis., have formed a partnership and will open the West Side garage in Green Bay this week. Livery and repair shops will be features. This is the only garage on the west side at Green Bay.

Starts a Franklin Company—The Franklin Motor Car Co., of Columbus, O., was incorporated recently with a capital stock of $10,000 by Frank H. Lawell, Robert M. Todd, G. S. Ferguson, M. L. Welch and H. L. Clevenger. The company will conduct a garage business and sales agency for several lines of cars on South Third street.

Plant at Ralston, Neb.—A new factory designed to manufacture motor cars of the high-wheel type for western roads will be built at Ralston, a new industrial suburb of Omaha, Neb. The enterprise is being promoted by Ralph Rogers and C. A. Overholt, who last week purchased a tract of ground 250 by 300 feet at Ralston as a site for the factory which they state will employ 250 to 300 men.

Brewers Order Trucks—With business in a decidedly unsatisfactory condition, practically all Indianapolis breweries have placed orders for motor trucks as an economical measure. Within the last 10 days orders for trucks have been placed by the Terre Haute Brewing Co., Indianapolis Brewing Co., which has ordered four trucks, the Home Brewing Co. and the American Brewing Co.

Mitchell Branch in Milwaukee—The Mitchell Motor Car Co., of Racine, Wis., has established a Milwaukee branch at 528-532 Broadway. The Mitchell has been included in another agency at Milwaukee for several years, but the growing importance of Milwaukee as a motor car distributing center has led the Racine factory to establish a branch. The Rambler, Kissel and Mitchell, all Wisconsin-made cars, now have branch offices in Milwaukee.

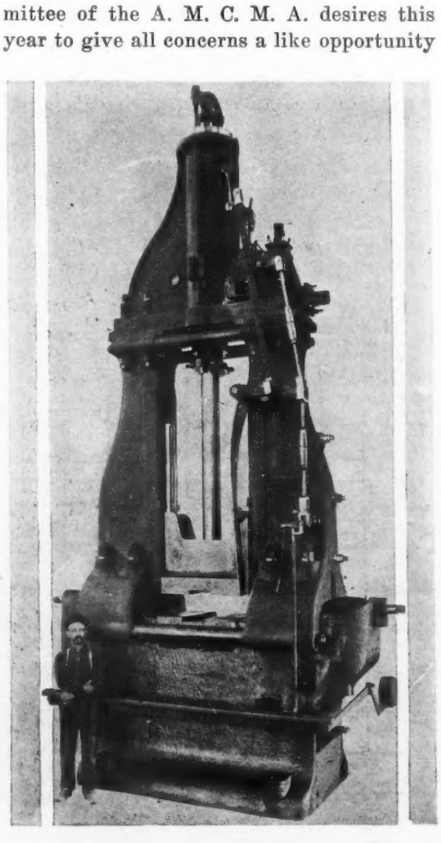
Another Big Store for 'Frisco—Another of the big San Francisco firms is to have a fine new home. The Consolidated Motor Car Co., agent of the Pope-Hartford, has taken a lease of a new building that is to be constructed at the corner of Van Ness avenue and McAllister street. The building will be a concrete affair, and it is the plan of the Consolidated to finish the interior of it in the most attractive fashion. For the past year it has been housed in a brick building on Golden Gate avenue, but President Weihe, regarding Van Ness avenue as the real street for a motor car salesroom, has determined to change quarters. The present quarters of the Pope-Hartford are to be occupied by the Franklin Automobile Co.

Self-Starter For Greyhound—The Burdick Motor Car Co., of Eau Claire, Wis., is perfecting the Greyhound model, its first product, and has added a self-starting device.

Kissel Increases Capial Stock—The Kissel Motor Car Co., of Hartford, Wis., has increased its capital stock from $200,000 to $400,000. The additional issue is to provide for extensions and additions and to carry the increased output for 1910.

Will Make Body Luster—The Aquila Chemical Co. has been incorporated in Milwaukee with a capital stock of $5,000, to manufacture Aquila body luster for metal, wood and leather. W. A. Alexander, Frank C. Schoenherr and V. W. Alexander are the incorporators.

Don't Forget October 1—Attention has been drawn to the fact that applications for space in connection with the show which opens in Grand Central palace New Year's eve must be received by October 1 in order to participate in the first allotment. Last year a number of concerns were unable to secure any space at all, owing to their failure to file their applications within the time, and the show committee of the A. M. C. M. A. desires this year to give all concerns a like opportunity of participating in the first allotment which in past years has taken the entire 72,000 square feet of floor space at the palace.



RAMBLER GIANT FORGING HAMMER

Lausier Appointed—E. B. Lausier has been appointed assistant manager of sales of the Timken Detroit Axle Co., Detroit, Mich., and the Timken Roller Bearing Co., Canton, O.

Introduces Falcar—C. F. Van Sicklen, assistant sales manager of the F. A. L. Motor Co., Chicago, introduced the Falcar to the Wisconsin trade on September 18 by demonstrating from the garage of the Kopmeier Motor Car Co., 375-379 Summit avenue, Milwaukee.

Coppock May Move—Negotiations are pending for the removal of the plant of the Coppock Motor Car Co. from Decatur to Fort Wayne, where capitalists have agreed to dispose of $100,000 worth of preferred stock. The company manufactures business vehicles and taxicabs. The Clark Automobile Co. already has closed negotiations for moving from Anderson to Shelbyville, where a large bonus was offered by business interests.

Longstreth Gets the Pullman—William C. Longstreth, who formerly represented the Maxwell in Philadelphia, has just closed a deal whereby he has secured the Pullman agency for the Quaker City and adjacent territory. Pending the completion of extensive improvements to the big building at 257-259 North Broad street, the Longstreth Motor Car Co., which is the official title of the concern, will occupy temporary quarters at 1407 Race street.

Interested in Wintons—George W. Miller, Seattle manager for the Winton company, has received a special summons from the Canadian government at Quebec to appear before the government officials at Vancouver, B. C., at an early date to present information in detail and quote prices on three Winton six cars for use by the Canadian government officials. The Columbia garage, of Spokane will represent the Winton Motor Carriage Co. in Spokane and vicinity during the season of 1910.

Big Shop Under Roof—The shop of the A. O. Smith Co., of Milwaukee, at Keefe avenue and Twenty-seventh streets, Milwaukee, is now under roof. The dimensions are 1,025 by 287 feet. The building is of concrete construction, steel trussed, one story high, with saw-tooth roof. A 700-horsepower Allis-Chalmers engine will furnish the motive power. The plant will be in partial operation on December 1. Mr. Smith is planning to erect another building to be devoted to a dining room for the 1,000-odd employes. Work on the new plant is being done by the company

itself, instead of awarding contracts to builders. First ground was broken on July 9, and work has been expedited under personal direction of Mr. Smith.

Catering to Motoring—The Badger State Tanning Co., of Sheboygan, Wis., has decided to establish a department for the production of fine leathers for upholstering motor car bodies.

Columbus Incorporation—The Fairfield Automobile Co., of Columbus, O., was incorporated recently with a capital stock of $20,000 by J. F. Albright and others to do a general garage and repair business in Baltimore, O. It will also handle several lines of motor cars.

Has a Top Business Also—The Central Ohio Motor Car Co., of Columbus, O., which has the agencies for the Hupmobile and the Velie, has enlarged its establishment at 61 East Spring street by opening a top and paint shop in addition to a complete machine shop. In fact the concern is now fully equipped to take care of all repairs on motor cars. The second floor will contain a show room and the first floor will be given over to garage space.

More Overland Expansion—The Overland Automobile Co., has let the contract for another large addition to its Toledo plant, work to be begun at once. It will be 468 feet long, 91 feet wide, three stories high, and constructed of brick. It will be used for an assembling and painting department. The addition to the Toledo plant will give the concern more than three-quarters of a million square feet of floor space. It is expected that the plant will turn out 11,000 machines during the season of 1910.

York Declares Dividend—The annual meeting of the board of directors of the York Motor Car Co. was held September 15 and a dividend of 7 per cent declared, and the following officers were elected: T. C. O'Connor, president; O. Stevenson, re-elected secretary and treasurer; George S. Schmidt, member of the board of directors and counsel for the company. A large amount of money was set aside as a surplus. The policy of the company will remain unchanged, and it was practically decided that the capacity of the plant would be again doubled for 1911.

Will Make Electrics—A new company styled the Ohio Electric Car Co. was this week incorporated at Toledo, with a capital stock of $75,000. The incorporators are Henry P. Dodge, Rathbun Fuller, Henry E. Marvin, James Brown Bell and Robert R. Lee. It was organized by the election of the following officers: President, A. M. Chesbrough; vice-president, R. R. Lee; treasurer, James B. Bell; secretary, Frank Suydam; general manager, H. P. Hodge. The new concern will take over the business of the Ohio Electric Carriage Co., launched some time ago for the purpose of manufacturing electric motor cars. The company expects to turn out 400 cars during its first year. The bodies will be built by the Milburn wagon works and the motors by the General Electric Co. The car embodies new features in electric runabouts.

WHERE THE FALCAR IS MANUFACTURED IN CHICAGO

Sells Watertown Garage—Albert Wegemann, 108 Second street, Watertown, Wis., has sold his garage and business to R. A. Fuller, of Sturgeon Bay, Wis., and Edward F. Bellman, of Milwaukee, who will take charge at once.

Has a Business Car—An unusual agency has been taken by the Indianapolis Motor Car Co. at Indianapolis for the Empire runabout. Heretofore the company has handled commercial cars exclusively, but has had many calls for a business runabout. It will have the Empire agency only for business purposes, such as for collectors, salesmen, etc. The Fisher Automobile Co. will have the general Empire agency in Indianapolis.

Great Smith Move—The Smith Automobile Co., of Topeka, Kan., builder of the Great Smith cars, is to build an assembling plant at Kansas City, according to a dispatch from Dr. L. Anton Smith, president of the Smith company. The parts of the cars will be made at Topeka, shipped to Kansas City and assembled into the complete motor cars at the plant. The Ford company is building a similar plant there now. Work on a concrete building was started last week.

New Minneapolis Concerns—Two new concerns have located in Minneapolis or have plans for local agencies this fall. The A. G. FitzGerald Selling Co., composed of Duluth men, has taken over the Stearns agency in the northwest and has contracted for fifty cars. The Duluth office will be maintained and a Minneapolis office will be opened November 1, it is planned. The other newcomer in Minneapolis and northwestern motor circles is the Motor Sales Co., which has taken on the Apperson and the De Tamble. This concern is composed of A. N. Smith and W. A. Wright and showrooms have been secured on Fourth street south.

Making the Rocoit—Carl E. Lipman, of Beloit, Wis., is organizing a company to manufacture a six-cylinder car of his own design and to be known as the Rocoit, which is a combination of Rockford and Beloit. The factory will be located in Rockford, Ill.

Fredrickson Expands—H. E. Fredrickson has constructed a new salesroom within the walls of his present building on Farnam street, Omaha. The new room is 32 by 52 and it is lighted by hundreds of incandescent lights. It has a hardwood floor, elaborate decorations on the walls and a metal ceiling. W. H. Wignamn has accepted the position of general manager for the Fredrickson company.

Kissel After More Men—The Kissel Motor Car Co., of Hartford, Wis., has issued another call for skilled workmen to man the additions now under construction and also to assist in the 1910 production in the present shops. Dwellings are provided at low cost to married employes and every effort is made for the convenience and comfort of workmen. There is a shortage at present of lathe, boring mill and power turning lathe hands.

Pelletier Uses Wireless—To transmit advertisements by wireless is rather a new wrinkle, but this was a feat performed by E. LeRoy Pelletier, advertising manager for the Studebaker Automobile Co., the other day. In company with Mrs. Pelletier, the advertising man was trying to steal a few days away from business and part of the plan was a trip by a steamship from New Orleans around to New York. On the second day out when in the middle of the Gulf of Mexico he wrote his advertising copy and then transmitted the 1,500

GARAGE OF J. E. HENDERSON AT TROY, ALA.

words together with instructions as to illustrations and composition, by wireless to Key West, Fla., from whence it was forwarded by mail to the various journals.

Will Make Cars—Announcement is made by Colonel T. J. Kauffman, a prominent official of the Kauffman Buggy Co., of Miamisburg, O., which went into the hands of a receiver several months ago that the receivership would soon be terminated and arrangements will be made to convert the large plant covering several acres into a motor car factory.

Weisenfeld's New Store—The Little Joe Weisenfeld Co., Baltimore representative for the Reo, Oakland and Hupmobile, has secured a lease on the building, 14 North Howard street, the entire four floors and basement of which will be converted into a motor car exchange. This will include a repair shop. The building has a frontage of 35 feet and a depth of 105 feet.

Promotion For Holden—A. S. Holden, assistant sales manager of the F. B. Stearns Co., on October 1 assumes the position of western manager, with headquarters in San Francisco, his territory extending from Salt Lake City to the coast, and from the northern to the southern boundary of the United States. Holden has been associated with the Stearns company since February, 1903. He has worked through every department of the factory. In the 1906 Glidden tour Holden drove a Stearns car.

New Studebaker Home—The new home of the Studebaker Automobile Co., in Portland, Ore., is located at Alder and Chapman streets. It is constructed of brick and concrete and equipped with 18-foot heavy service elevator, so all the four floors are available for the largest machines. The lower floor is used for salesroom, office and waiting room and enclosed in glass partitions from the rest of the floor, which is used for garage and washing space. The second floor contains an office and drivers' locker and waiting room. The third floor is used for garage, and the fourth for stock room and shop. In the basement is a battery department and a compressed air outfit which delivers air at 100 pounds pressure on all the floors.

Will Recharge Tanks—The Auto Acetylene Co. has opened an establishment at Ridge avenue and Grant boulevard, Pittsburg, where it will re-charge any make of gas tank.

Making the Vaughn—During the coming season the Whiteside Wheel Co., of Indianapolis, will manufacture a car known as the Vaughn runabout. It will be equipped with a two-cylinder 20-horsepower water-cooled Beaver engine and Vaughn transmission. The wheels will be of the 38-inch Whiteside type, fitted with 2-inch solid tires.

Koto and Odee Combine—Alfred S. Koto, assistant manager of the Warner Instrument Co., of Beloit, Wis., up to September 15, when he resigned, will establish a plant for the manufacture of motor car accessories and novelties at Beloit in association with Thomas Odee, for several years superintendent of the gas engine department of the Fairbanks-Morse Mfg. Co. at Beloit.

Going to Bath—The Bath, N. Y., board of trade has given a considerable contribution to the Kirkham Motor Co. to apply on the payment for a plant to be occupied by that concern in Bath. In return for the cash the company agrees to remain in that place for 7 years. The concern manufactures motors for motor cars and is employing seventy-five men. This force will be increased to 200 just as soon as necessary factory room is secured.

York Branch in 'Frisco—The York Motor Car Co., of York, Pa., manufacturer of the Pullman car, has temporarily established a branch in San Francisco. Mrs. C. B. Gardner, representing the factory, arrived there a few weeks ago, and after looking over the field decided to take over for the time being the interests of her company, which for several years have been in the hands of the Frank O. Renstrom Co. Mrs. Gardner states that the factory will retain control until the Pullman has been well established in the San Francisco market, when it may be turned over to the enterprise of an agent.

Heinemann Joins Great Smith—W. E. Heinemann, recently of the Palmer & Singer Mfg. Co. Chicago branch, has joined the sales forces of the Smith Automobile Co., Topeka, Kan.

Take On the Lozier—Brown, Thomas & Co., of Hartford, Conn., have been appointed agents for the Lozier for that state, with the exception of the counties of Fairfield and New Haven.

New Pittsburg Concern—The Pittsburg Speedway Motor Co. has been formed at Pittsburg, Pa., by John W. Wardorf, John M. Weaver and B. S. Hare. It will establish a garage at once toward the east end and maintain a repair department in addition to having one or more agencies.

Another Electric Garage—The Baker Vehicle Agency's new building in Chicago will be ready for use May 1, 1910. A two-story brick garage is being erected on a 50 by 150-foot property on Michigan avenue, the lease of 10 years calling for a rental of $25,000 per year for the first 5 years and $27,500 per year for the next 5 years.

New Columbus Company—The Love Garage Co., with a capital stock of $5,000, was organized recently in Columbus, O., by Fred E. Love, James P. Love, R. E. Love, W. H. Furguson and H. J. Powell. The concern took over the business formerly conducted as a partnership on West Fifth avenue. It was known as the Love garage.

Change in Stoddard Agency—There has been a change in the Minneapolis Stoddard-Dayton agency, formerly conducted by John Burmeister. The Northland Motor Car Co., a new concern capitalized at $100,000, has been organized, having at its head W. D. Rightmire, for years connected with the Diamond Rubber Co. in the northwest, and Harold Vorce, formerly a member of the H. Paulman & Co. agency in Minneapolis and the northwest. There is plenty of capital back of the concern and Stoddard-Daytons will be handled in a wholesale and retail manner.

Big Rambler Equipment—In the new Rambler factory, to which large additions are constantly being made, Thomas B. Jeffery & Co. have just put in a giant forging hammer, for making all crankshafts, connecting rods, front axle yokes and other heavy forgings. The anvil block of this hammer alone weighs more than the average ten-room, two-story frame house. It has a falling weight alone of 3,500 pounds, making it capable of striking a blow of approximately 15,700 pounds. The anvil block weighs 70,000 pounds, and the total weight of the hammer is 98,000 pounds. This press has been set up on a foundation of solid concrete 16 feet deep and 15 feet square, with cushions consisting of oak timbers. In addition to this a 500-ton

drawing press for the shaping of brake drums, clutch cones and other heavy drawn steel parts, has been installed. This press weighs 60,000 pounds.

Takes the Overland—Long & Histed, a motor firm organized this week in Kansas City, Mo., will take over the Overland agency and will handle in addition the American Simplex and Brush cars. The Overland headquarters at 1527 Grand avenue will be entirely remodeled.

Ford Agents Locate—R. F. Kahler and A. M. Eastwick, Baltimore representatives of the Ford, have selected a site on North avenue near Oak street as the location for the future Ford home. The structure will be two stories, the first floor of which will be located on the first floor and the repair shop will occupy the space on the second floor.

Gets Mitchell Agency—The Toledo-Mitchell Co., of Toledo, O., was incorporated this week with a capital stock of $10,000. The incorporators were John J. Vollmayer, Frederick C. Schaal, Samuel McIntyre, William A. Cavanaugh, William C. Vollmayer and W. H. McIntyre. The new company will have the Toledo agency of the Mitchell car.

White Joins Reeves—W. McK. White has left the Automobile to join forces with the American Motor Car Manufacturers' Association. He will act as one of the right-hand men to Manager Reeves in the management of the show which opens in Grand Central palace on New Year's eve. Another addition to the office staff of the A. M. C. M. A. is W. D. Hardy, of New York.

New Rambler Connection—A new connection has just been established by Thomas B. Jeffery & Co. with the Kenny Motor Car Co., of Brooklyn, by which this concern will act as distributers of the new Rambler for that territory. The Kenny Motor Car Co. has purchased the corner property at Sterling place and Bedford avenue, Brooklyn, where a modern building, including garage and showroom, will be erected immediately. William F. and T. A. Kenny are the active members of the firm.

Seeking Sites in Minneapolis—Just now there are several firms in the motor car business in Minneapolis which are looking and without apparent success for suitable sites for new buildings. M. A. Waters & Son, representing the Stevens-Duryea line, the Mich-Stair Co., having the Knox, the Hathaway-Stimson Co. recently organized with Minneapolis and Kansas City capital to handle the Detroit electric and Hupmobile and the Segerstrom Auto Co., selling the Rider-Lewis, are all looking for larger and better quarters. Real estate men are hustling around trying to accommodate these firms and price doesn't seem to be an object, plenty of room being the main idea. This condition is all the more remarkable when it is considered that the past year saw five handsome structures built for the motor industry in Minneapolis and still the demand continues.

Change of Name—The name of the Hamilton Automobile Co., of Hamilton, O., has been changed to the Central Motor Co. No change in the ownership of the concern has been made.

Gossip From St. Louis—The Victor Automobile Co., of St. Louis, is installed in its new and large factory at Boyle avenue and Papin street. The Smith Automobile and Battery Co. has taken over the garage business of the Mississippi Valley company. The Phoenix Automobile Supply Co. has been appointed distributor for Missouri of the Stein laplock tire.

Has Territory for Oakland—Manager W. B. Fewel, of the St. Louis branch of the Olds Motor Works, has returned from Lansing, Mich., with the news that his branch will hereafter handle the Oakland car in addition to the Oldsmobile. The branch will have Missouri, Illinois, Arkansas, Tennessee and Mississippi for its territory.

Starts in St. Louis—A new concern, the Reliable Motor Car Co., of St. Louis, has been chartered. The new firm is incorporated for $15,000 and will do a general motor car business, handling the Johnson. A garage will be opened in a few days. The company has temporary quarters in the Century building.

Another Pittsburg Agency—The Federal Motor Car Co. has been organized at Pittsburg by A. M. Brown, F. S. Chapman and J. H. McClaren, and will deal in motor cars. McClaren is president and Brown general manager of the company, which will locate in the old quarters of the Oldsmobile company at 5922 Baum street. The company also has secured a five-story building at 4514 Henry street, which will be used as a garage and repair shop. It will have the exclusive agency for the Oldsmobile and Oakland in western Pennsylvania, West Virginia and Maryland.

Pope Dividend Probable—It is stated in financial circles in Hartford, Conn., that a meeting of the directors of the Pope Mfg. Co. will be held next Tuesday, at which time it will be voted to pay a dividend of 6 per cent on stock of $2,400,000 preferred denomination.

Miniter Makes a Change—N. H. Miniter, former general traveling representative of the Factory Sales Corporation, Chicago, has changed to Lavalette & Co., makers of the Eisemann-Lavalette magneto, with which concern Mr. Miniter is now associated in the capacity of sales manager for the United States, with headquarters in New York city.

Parts Company Election—At the election of the Hartford Auto Parts Co. the following officers were elected: President and treasurer, W. H. Cadwell; vice president and manager, F. H. Bogart, secretary, F. L. Martin; directors, W. H. Cadwell, T. H. Brady, J. J. Amgulatis and John Boyle, of New Britain; Edward W. Putnam and F. H. Bogart, of Hartford.

Picard Handling Ricketts—Paul Picard, of Chicago, has taken the selling agency for fourteen states for the Ricketts, made in South Bend, Ind., and has placed an order for 150 of the 350 cars which the company will turn out. The Ricketts line will consist of a six and a four, the former having a bore and stroke of 4⅛ by 4¼ inches, a Bosch magneto and double system of ignition, multiple disk clutch, selective transmission, I-beam front axle, floating rear and honeycomb radiator. The valves are in the head and on the seven-passenger car the wheelbase is 135 inches. Thirty-six inch wheels are fitted. Mr. Picard now is temporarily located at 1333 Michigan avenue, but will soon have a new place.

NEW YORK STORE OF LOZIER MOTOR CO.

The Motor Car Repair Shop

REPAIRING A RADIATOR

PROBABLY one of the most undesirable jobs that is brought before the repair man of the ordinary garage or repair shop is that of repairing a leaky radiator. As a rule the most practical method is to remove the radiator from the car, send it to a good tinsmith or specialist in this sort of work, then after testing it under pressure replace it on the car. First of all, in order to repair a leak, it is necessary to find its exact location, for the point at which the water is seen to emerge or drop from the radiator is not always the point of its issue therefrom. Having located the leak, mark it carefully with a piece of chalk or by scratching slightly with a scratch awl. The radiator should now be thoroughly drained of its contents and stood up to dry out in such a position that the leaky portion is uppermost, so that the water will drain quickly from that part and allow it to dry as soon as possible. To solder a section of a radiator while it is wet is extremely difficult, often impossible, and somewhat dangerous owing to the fact that little steam pockets generally form which prevent the hole from closing and often explode, scattering little globules of molten lead in all directions. When the work is dry, if the leak is on the outside and in a get-at-able position, it is not difficult to clean the portion around the spot where the repair is to be made and solder in the usual way. A crevice of very small width or a hole no larger than the diameter of pin may be successfully filled up with solder from the point of the soldering iron, but cracks or holes of larger dimensions may be more successfully repaired by using a brass or copper patch. When the leak is internal, as in one of the tubes of the inner rows of a vertical tube radiator, it is necessary to remove several tubes in order to get at the defective one. This requires much skill and ingenuity and the job should go to the factory.

CLEANSING THE WATER SYSTEM

The water system of a motor car can, in most cases, be very efficiently cleansed with a saturated solution of soda. It is only necessary to dissolve common washing soda crystals in slightly warm water until the water will dissolve no more, to obtain what is known as a saturated solution of soda. The water should be drained from the cooling system and replaced by the solution. The motor should then be run for 1 or 2 hours in order to thoroughly circulate the solution, after which it should be drained out and the system again filled with fresh, clean water. When filled with the fresh water the motor should be started, the drain cocks should again be opened, and while the water is draining from the bottom of the radiator a fresh supply of water must be kept flowing in at the top. About a quarter of an hour's running in this way will suffice to thoroughly cleanse the solution, and the dirt which it has loosened from the system, and the drain cocks may then be closed and the system filled with clear water as usual.

TESTING IGNITION CIRCUITS

Few repairmen or operators are familiar enough with the advantages and functions of a voltmeter or ammeter, or a volt-ammeter, to appreciate their value. The purpose of the voltmeter is to indicate the voltage or pressure of the batteries or battery circuit, which is equivalent to indicating the condition of that circuit, because any change in the condition would result in a change of voltage. A broken conductor or wire on any part of the circuit between the batteries and the coil would cut out the voltmeter. A corroded terminal would diminish the voltage. A loose connection, such as a loose thumbscrew on the batteries, or a joint in the wire which made momentary contacts, would be indicated by the voltmeter needle oscillating over the scale. If the batteries or battery circuit became grounded there would be a sudden drop of the voltage, as shown by the voltmeter needle, as soon as it had any noticeable effect on the engine, or probably a little before in case the voltmeter were permanently installed in the system. In short, under normal conditions of the battery circuit the voltmeter needle always will register on that point of the scale representing the voltage of the circuit, and any change in the indications is a forewarning of trouble, which if heeded at once will generally result in not only lengthening the life of the batteries but in maintaining the rhythmic action of the motor as well. A voltmeter is nothing more than a pressure gauge, and its action similar to that of a pressure gauge in a gasoline or acetylene gas system, except that it is more easily used inasmuch as a wire is more easily tapped than a pipe.

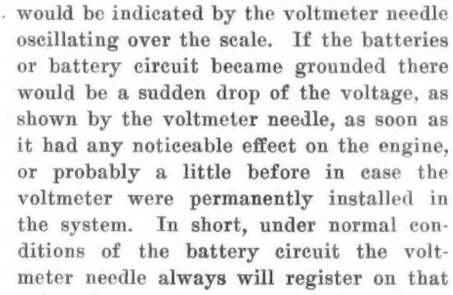


FIG. 1

An ammeter is a gauge which also has its special uses, and it should be so connected in the circuit that it gives a constant indication of the current flowing through the circuit, and its purpose is to show any change that may occur in the circuit whereby the current flow is increased or diminished. For instance, if the ground wire became broken no current would flow and the ammeter needle would drop to zero, although the needle of a voltmeter would still indicate that the battery circuit was all right. A bad contact in one or more of the timer circuits would be indicated by the ammeter needle dropping toward zero every time that circuit came in contact. If the platinum points of the vibrators became oxidized it would increase the resistance of the contacts, and the flow of current would be unsteady, causing the ammeter needle to quiver. If the spark plugs became coated with carbon or soot inside the cylinder this would afford a path of lower resistance, and more current would flow, easing the ammeter to read higher, or if the resistance of the primary circuit became impaired so that there was a leakage this would also permit more current to flow and the ammeter would read higher. From the foregoing it will be seen that the use of the voltmeter and ammeter, or the volt-ammeter, which is the two instruments combined in one, in testing a circuit, will indicate very closely the condition of the system and enable the operator to keep his ignition equipment at its highest efficiency at all times. In Fig. 1 is illustrated a diagram showing the connections of a method of testing coil units with the engine stopped making it unnecessary to disturb any of the wiring.

STARTING ON THE MAGNETO

It sometimes is necessary, on cars employing two ignition systems, to start the motor on the magneto; and to do this with the spark lever retarded as when the batteries are employed, is often very difficult and sometimes impossible. By advancing the spark lever and turning the motor over rapidly several times, starting is rendered much easier. This is done to make up for the lag in the spark caused by the slow speed of the magneto. There is but little danger from a back kick in starting in this manner because, unless the crank is turned quite rapidly there will not be enough current generated to make a spark, and when the crank is turned rapidly enough to make a spark enough energy has been stored up in the flywheel to overcome any tendency to kick back. This applies to jump spark systems only.

Development Briefs

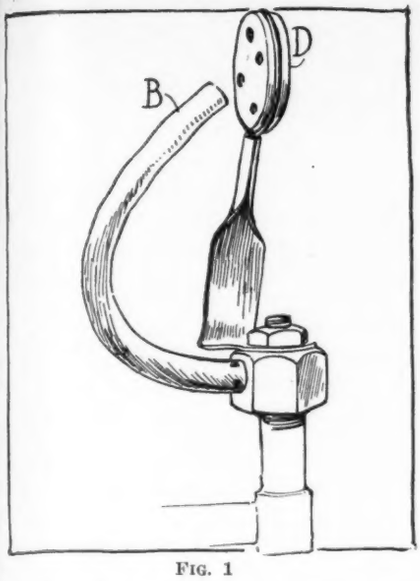


FIG. 1

The Wunderbutton Light

THE Wunderbutton Light Co., New York, manufactures a burner suitable for headlights on motor cars with which light it is claimed 50 to 75 per cent less acetylene consumption is required. It consists of a small brass burner which is interchangeable without any alterations with any acetylene burner tip, and a small white disk or button ⅞ inch in diameter. The flame from the burner B consuming gas at a maximum rate of ¼ cubic foot per hour heats the button D to a high degree of incandescence which produces the light. This burner can be used in any form of headlight or searchlight designed for motor car use. It is claimed this burner will not become clogged with soot or other matter as readily as other burners, owing to the fact that there are no sharp angles in the burner, as shown in Fig. 1.

Firestone Demountable Rim

The Firestone Tire and Rubber Co., Akron, O., is marketing its 1910 demountable rim, the leading merit of which is that it can be used with quick-detachable tires, which permits of damaged cases being changed much more readily and where only a clincher rim can be employed. Fig. 3 shows the makeup of this rim. On the wheel felloe F is a band, B, having a shoulder, S, at one side and a beveled face, G, at the opposite side. The rim, R, carries on its inner face blocks, L, which fit in the depression of the rim, R, and rests against the shoulder, S. A ring, H, is used to serve as a shoulder on the demountable side and holding it in place is a block, K, held by the transverse bolt T through the wheel felloe. There are eight of these bolts T, regularly spaced around the wheel circumference and eight of the blocks K for holding the ring H, and consequently the rim R in place. The lower end of each block, K, is arch-shaped and rests against a bracket, Z, secured to the side of the felloe. This arch-shaped end of the block K, together with the corresponding surface on the bracket Z insures the direct pressure on K bearing on the ring H, and preventing the block binding and not bearing upon the ring. To remove this rim it is first necessary to remove the nuts from the eight bolts, T, after which the eight blocks, K, are removed, the ring, H, taken off, and rim detached.

A Handy Tool

The Motor Car Equipment Co., New York, has recently produced a combination valve tap and die which may be found useful in removing the inside portions of tire valves that cannot be removed with the ordinary cap owing to damaged threads or an accumulation of rust. Furthermore it is designed to ream out the inside threads and recut or dress up the outside ones, so that a new inside valve or a cap may be fitted without the necessity of buying a new valve. This little tool is of one-piece construction and of drop-forged hardened steel highly polished.

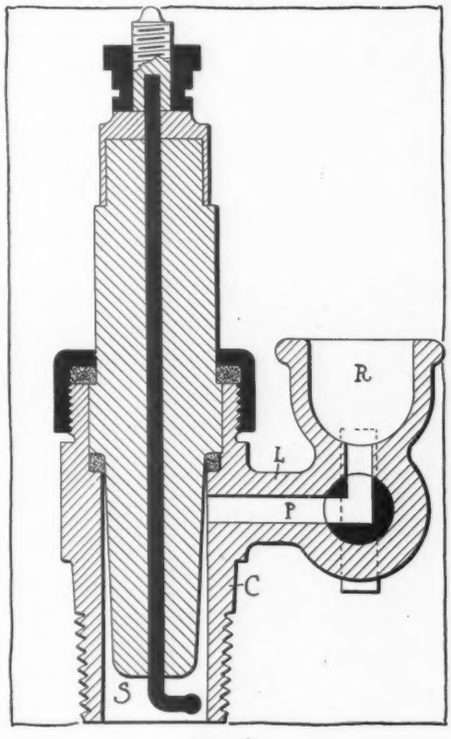


FIG. 2

Gasoline Storage Tanks

The Air-tank Steel Tank Co., Pittsburg, Pa., manufactures tanks for storage of gasoline in large or small quantities together with pump arrangements for drawing from same. The tanks are made in 1, 2, 3 and 5-barrel sizes, with brazed steel and no rivets or solder in the make-up. A supply pipe for filling is furnished as well as a special pump for raising the gasoline. After the main tank has been buried in the ground a superimposed dome fitted with a special lock to prevent any tampering rises only a few inches above the ground after the tank is in place. For drawing gasoline the supply pipe is provided with a rubber tube extension to carry the fuel direct to the tank in the car. The operation of the pump forces the gasoline through the supply pipe, a few strokes being sufficient to raise enough gasoline for a car. When enough gasoline has been raised the air in the storage tank is allowed to escape and as it does the surface gasoline in the supply pipe is drawn back into the airtight steel tank.

Convenient Priming Cup

The Comet Electrical Co., of Detroit, Mich., manufactures the All-In-One spark plug which, as illustrated in Fig. 2, has a combined priming cup in conjunction with it. The casing C of the plug has an extension L on the outside with a regulation priming cup reservoir R, which communicates by passage P with the space S inside the spark plug. The passage is controlled by the usual priming cup valve. The advantage of using a priming cup in conjunction with the spark plug is that the entering gasoline will tend to clean the plug insulation and there will be every opportunity of furnishing a good mixture convenient to the sparking point.

A New Shock Absorber

The Westen Mfg. Co., Newark, N. J., has brought out a new type of what is claimed to be an automatically-adjustable shock absorber. Two friction planes are used in this absorber, which are so arranged that the smaller is brought into action on small obstructions or the ordinary flexion of the springs, whereas the larger plane checks or breaks the shock caused by unseen depressions or rough roadbeds.

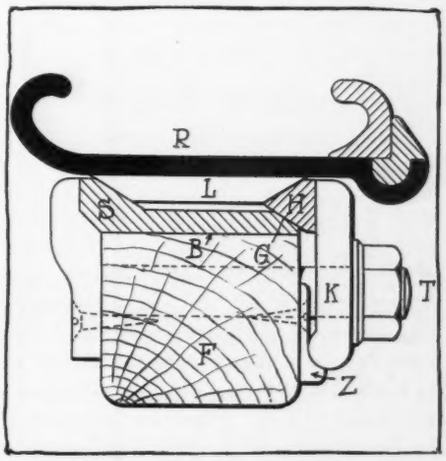


FIG. 3

Brief Business Announcements

Tampa, Fla.—The Hobbs & Knight Co. has been appointed agent for the Overland car in this city.

Greenville, S. C.—W. H. Irvine, Jr., has secured the agency of the Regal in northwestern South Carolina.

Greenville, S. C.—B. W. Martin has closed a contract to handle the Haynes in Greenville and adjoining counties in South Carolina.

Boston, Mass.—The garage at 21 Hawkins street is being remodeled for the Corlew-Coughlin Motor Co., which is now located on Boylston street.

Lansing, Mich.—The Krit Motor Car Co., of Detroit, has been incorporated with a capital stock of $100,000, and is to engage in the manufacture of motor cars.

Buffalo, N. Y.—John B. White, of Niagara Falls, is preparing to erect a garage 40 by 125 feet, on Genessee street, near Spring. Work has already been started on the new structure.

Portland, Ore.—F. W. Vogler and Norman Devoe have recently taken the agency for the Buick in Portland, Ore., and will cover the territory in Oregon, Washington and northern Idaho.

Jackson, Cal.—The Jackson Auto Stage Co., which recently started a line between this town and Stockton, has ceased to operate this line and is devoting its entire attention to the local business.

Seattle, Wash.—Articles of incorporation of the Lloyd Automobile Co., have been filed in the office of the county clerk by W. E. Cook, C. B. Lloyd and L. Templeton, of Portland. Capital stock, $40,000.

Portland, Ore.—The branch of the White steam car in Portland will be in charge of C. A. Eastman and G. S. Brackett. Plans have recently been drawn for a six-story concrete garage to be erected in the near future.

San Francisco, Cal.—G. M. Parmenter, who is well known in this city as salesman for the White company, has joined the forces of the Consolidated Motor Car Co. and in the future is to look after the interests of the Pope-Hartford.

Milwaukee, Wis.—The Charles Abresch Co. has branched into the motor truck business, making a complete line varying from 500 pounds to 3 tons. R. H. Green, recently connected with the Brodesser trucks, has been appointed sales manager.

Seattle, Wash.—The Metropolitan Motor Car Co. has plans for the erection of a one-story concrete garage and salesroom in the Henry building, adjoining the Olympic Motor Car Co. The new garage will be 70 by 100 feet. The Metropolitan Motor Car Co. is a new incorporation, of which Bruce A. Griggs is manager and president. The concern will have the agency for the Acme and Pullman.

Seattle, Wash.—The Oakland Motor Car Co. recently has opened its salesroom at 312 East Pike street.

Allentown, Pa.—The Allen Motor Co. has filed articles of incorporation with a capital stock of $5,000.

Reading, Pa.—The Reading Automobile Co. is preparing to erect a garage on North Fifth street at a cost of $60,000.

Chicago—Arthur F. Nelson & Co. have opened a garage at 4642 Evanston avenue, 75 by 100 feet, which will accommodate forty cars.

Lyons, N. Y.—The Lyons Automobile and Garage Co. is building a new garage 48 by 72 feet with two stories and basement, built of concrete blocks, and is expected to be completed early in September.

Seattle, Wash.—The Polson Implement Co. has entered the motor field in Seattle and will handle the American and Maxwell. Marc Bunnell, dealer the past season for the Locomobile and Maxwell lines, has become interested in the Polson company and will handle the motor car branch.

RECENT INCORPORATIONS

New York—Garland Automobile Co., capital stock $10,000. The company is the New York agent for the Velie and Speedwell, and is located at 1657 Broadway. G. W. Garland, Jr., is the president.

Boston, Mass.—Automobile Reference Bureau, Inc., capital stock of $25,000, to do a general motor car business.

New York—Miller Motor Co., capital stock $30,000, to manufacture the Miller rotary engine. Incorporators, C. Miller, L. H. Cummings and G. W. Schaefer.

Little Rock, Ark.—Little Rock Taxicab and Transfer Co., capital stock $20,000. Incorporators, L. Reinman, L. Wolfert and A. Meyer.

Kittery, Me.—Viking Co., capital stock $10,000, to manufacture and deal in motors, engines, etc. H. Mitchell is to be the president, S. J. Morrison, treasurer.

Bridgeport, Conn.—Hawthorne Mfg. Co., capital stock $50,000, to manufacture accessories. Incorporators, J. H. George, J. R. Gibb and J. R. Gibb, the latter of Philadelphia.

Chicago—Marquette Motor Vehicle Co., capital stock $20,000, to engage in the manufacture of motors, vehicles, etc. Incorporators, I. L. Marks, D. J. Marks and I. B. Lipson.

Chicago—United Motors Co., capital stock $5,000, to manufacture motor cars, motors and accessories. Incorporators, W. F. Gray, G. L. Derr and D. B. Cole.

Trenton, N. J.—Hotel Strand, of Atlantic City, capital stock of $5,000, to operate hotels and garages. Incorporators, H. C. Edwards, F. C. Newbourg.

Jersey City, N. J.—Maxwell-Briscoe Omaha Co., capital stock $2,000, to manufacture motor cars and parts thereof. Incorporators, S. A. Anderson, J. R. Turner and B. S. Mantz.

San Antonio, Tex.—Automobile Sales and Supply Co., capital stock $20,000. Incorporators, S. H. Wells and Roy Campbell.

The Polson company has the plans completed for a new garage and salesroom at 926 First avenue south.

Palouse, Wash.—Chalenor & Saylor, formerly implement dealers, will hereafter give their attention to motor cars.

Dover, Del.—The Leech Automobile Co. has been incorporated with a capital stock of $500,000 by C. A. Bliss, J. P. LeFevre and C. H. LeFevre.

Seattle, Wash.—The Chanslor & Lyon Motor Supply Co. is now located in its new quarters at 916 East Pike street. W. A. Avery is manager.

Oneonta, N. Y.—The Central New York Automobile Co. has been incorporated with a capital stock of $50,000 by F. Anderson, H. L. Rothensies and G. A. Flint.

Rockford, Ill.—The Central garage is enlarging its place, which will be a fireproof building 66 by 156 feet. It is expected the building will be completed September 25.

Pittsburg, Pa.—Application will shortly be made for a charter for a new company to be known as the Grant Boulevard Petroleum Co. The company is to deal in motor supplies of all kinds.

Seattle, Wash.—The Stoddard-Dayton agency will be located in the old Capitol Hill garage, at Nineteenth avenue and East Roy street Ira D. Lundy is the manager for the Seattle house.

Freeport, Ill.—John J. Rosensteil and R. C. Myers have opened the Freeport garage. A complete line of motor accessories and supplies and motor cycles is carried. General repair work will be done in conjunction with it.

Portland, Ore.—F. A. Bennett, who has handled a number of makes of motor cars in Spokane, Seattle and Portland, intends to close up all of his northwest stores except the one in Portland, where a part of his original line will be handled.

New York—A new car is shortly to make its appearance in this city. It will be known as the Belmont 30, and is manufactured by the Belmont Automobile Mfg. Co., of Castleton-on-the-Hudson. H. G. Ingalls and A. C. Cheney, of Castleton, are president and treasurer, respectively, of the company.

Seattle, Wash.—M. S. Bringham, of the Bringham & Fenn Motor Car Co., located at 1915 East Pike street, has bought over the entire interest of his partner, H. C. Fenn, in the concern, and hereafter will have entire control of the company, of which he is president. Mr. Fenn was the former secretary and treasurer of the Motor Car Co. Mr. Bringham has the agency for the Cadillac car for 1910.